

AMIGA USER

INTERNATIONAL

MARCH 1989

AMIGA GOES
PRO!
PRO VIDEO
PLUS
MOVIESETTER
STARBOARD 2
K SPREAD

DEMYSTIFYING
INTUITION
—a brilliant
new series

- TV SPORTS
FOOTBALL
- PURPLE
SATURN DAY
- ACTION
SERVICE
- PHANTOM
FIGHTER



FALCON



WIN!

MEMORY EXPANSIONS
& LOADS OF SPECIAL OFFERS

03



THE AMAZING AMIGA . . .

**COMMODORE
AMIGA 500**



Pack Includes:
A500 CPU, Mouse, P.S.U., T.V. Modulator, Very First Tutorial, Workbench 1-3, Basic, Extras and Manuals.

**PLUS POSTRONIX BONUS PACK
WORTH OVER £250** which includes 10 Blank Disks, Disk Storage Box, 10 Excellent Games, Mouse Mat, Mouse Bracket (Mouse Holder) Deluxe Paint.

£399.00 + £5.00 post and packing

AMIGA 500 PLUS DISK DRIVE

Instruction Manuals, Extra Disk, Workbench 1-3, The Very First Tutorial, T.V. Modulator, Photon Paint, Mouse PLUS additional Amiga Compatible Disk Drive and 10 Blank Disks.

£449.00 + £5.00 post and packing.



MPS 1500C

MPS 1200P

MPS 1200P

The Commodore MPS1200P printer presents the state of the art in dot matrix printers, with all the features of a printer that would cost much more. The MPS1200P is designed to be like three printers in one. It can act just like an Epson FX printer, or with the flip of a switch, it can act just like an IBM Graphics Printer with IBM Group II-I character set (Danish/Norwegian character set) support. It can also print all the characters available with the Amiga in the Amiga configuration. The MPS1200P is capable of all the printing functions you would expect, as well as some additional features you may not expect.

MPS 1500C COLOUR PRINTER

A. TECHNICAL CHARACTERISTICS

PRINTING TECHNIQUE Impact dot matrix (9-needle print head).

DRAFT MODE matrix: 9 vertical dots x (5 + 4) horizontal dots; - print speed: 120 char/s, at 10/char in

TABULATION SPEED 2 chars/s

PRINTING DIRECTION bi-directional, with optimised head movement

PRINT PITCHES 10 char/in to 24 char/in programmable from line, and in SET-UP mode

LINE FEED 1/16in (4.23 mm), 1/8 (3.17 mm) and 7/72 in (2.4 mm); - n/216 in and n/72 in.

CHARACTER SET ASCII characters and special characters.

MAX. PRINT LINE LENGTH 40 top 192 characters, according to print pitch selected.

£229.99

+ £5.00 post and packing

£199.99

+ £5.00 post and packing

1084 HIGH RESOLUTION
COLOUR MONITOR

(including the
Amiga 500 deal)

£649.00

+ £10.00 post and packing



**1084 HIGH RESOLUTION
COLOUR MONITOR**

**1084S STEREO/COLOUR
MONITOR**

Compatible with PC,
Amiga, C64c, C128

£259.00

+ £5.00 post and packing

**AMIGA
1010 DISK DRIVE**



AMIGA 1010 DISK DRIVE

Amiga 3.5" external drive. Capacity 880K

PLUS FREE DISK

STORAGE BOX &

10 BLANK DISKS

£149.99

+ £5.00 post and packing

**A501 RAM
PACK**

512K for the Amiga

£149.99

+ £5.00 post and packing

THE AMIGA DIMENSION

When I was in Canada recently for the World of Commodore Show, I met two people who were excellent examples of the power of the individual in the Amiga Dimension. They were the programmers – completely independent of each other and working thousands of miles apart – who had been responsible for the creation of Gold Disk's exciting Moviesetter (reviewed in this issue of *AUI*) and Readysoft's shortly-promised and equally exciting from the publishing point of view, Macintosh Emulator. Both programmers are still students – though now already earning, one hopes, substantial rewards for their talents.

Moviesetter's creator is a student at Waterloo University near Toronto who went on 6 months work experience to

Gold Disk. He initiated the Moviesetter project and virtually carried it out alone. To do so he had to take a few months extra off from college, which meant a year away from his course. With some months over, he is now engaged on another Gold Disk project!

The Mac Emulator, likely to be an exceptional aid to the Amiga in the DTP field, literally arrived on U.S. company Readysoft's doorstep in a letter from a student at Auckland University in New Zealand. He is, of course, an *AUI* reader. He told me, "I didn't have a Mac available as they are too expensive, so I wrote an emulator." As simple as that...

The Amiga is a dimension where young talents – both programmers are only just past twenty – can have an

important individual impact. Because of the way the Amiga is built, there is, generally, no need for the big teams and high prices that are the rule for commercially developed programs for other professional standard personal computers. Individuals can create ideas and execute them. And while most of us will never aspire to creating Moviesetters or Mac Emulators, we can achieve remarkable results. The new series in *AUI*, **Introducing the Amiga**, began last month and in this *AUI* a series we start on **Intuition** are intended to help everyone gain greater understanding and the ability to exploit the tremendous power we each have at our command when we enter the Amiga Dimension.

Antony Jacobson
Managing Editor and Publisher

CONTENTS

CONSTANT FACTORS

Amiga Dimension:

Publisher Antony Jacobson's observations on the rapidly expanding Amiga scene

3

Newsfile:

The latest products, news and technological developments

5,6,8,97

Amiga Answers:

From the most basic to technical queries - we respond to your 'help' missives

22,23,24

Subscribe:

Keep your most important New Year's resolution - subscribe!

60

PD Reviewed:

Gems from the communications field

89,90

TEST DRIVE

Movie Setter:

Peter Lee sets his sights on Gold Disk's exciting new animation program

10,11,12

StarBoard2:

Expand the awesome power of your Amiga

14,15

Electronic Diary:

Mark Smiddy's notes and calculations on a remarkable Casio development

61

K-Spread Spreadsheet:

K-Data, K-Word and now K-Spread. We tot up the points on Kuma's accounting program

78,79

Media Line Fonts:

John Walker asks: "Is this font package your 'type'?"

64,94

ProVideo Plus:

Professional videophiles take note - this may be just the software you have been awaiting

74,76

FIELD REPORTS

Heard it on the Grapevine:

The latest bits and bytes from the games world

44

Computing Horizons:

Daphne Moss reviews a collection of computer predictions and their accuracy

62

Amiga Disk Drives:

Mark Smiddy checks out Abacus' book on Amiga machinery

87

USER PORT

MIDI:

Paul A. Overaa moves to the next stage of his series on the Amiga and music

16,24

AMIGA USER INTERNATIONAL

Managing Director and Publisher

..... Antony Jacobson

Editorial Co-ordinator

..... Mark Smiddy

Editorial Co-ordinator

..... Nancy Picard

Staff Writer

..... Tony Horgan

Consultant Art Editor

..... Graham Baldock

Assistant Art Editor

..... Rico Gusman

Production Co-ordinator

..... Lucy Szachnowski

Production Controller

..... Sandra Gallagher

Advertisement Manager

..... Billy Brown

Financial Director

..... B.J. Lewis M.Sc.F.C.A.

Special Offers Executive

..... Sammi Gaist

AUI CONTRIBUTORS

..... Betty Clay

To the Rescue:

Betty Clay illuminates the dark problem of Directory blocks

29,30

The Amiga-An Introduction:

Part II

An absolute must if you are a new Amiga user - and probably if you are not, too!

31,32

INTUITION

Intuition:

Harness the power of the Amiga Interface! Mike Nelson starts an exciting new series on the vital aspect of the Amiga

35,39,40,46,47

Searching AmigaDOS directories:

Paul A. Overaa guides you through

49,54,56

Amiga Programming:

Susan Maxwell outlines your choices

64

Getting Your CIX:

Make the most of the famous online service

92,94

ENTERTAINMENT

Denaris Teenage Queen

18,19

20

Purple Saturn Day

26,27

Mickey Mouse

34

4TH & Inches

36

TV Sports Football

42,43

Falcon

50,51

Phantom Fighter

52

California Games

66,67

Action Service

68

Around The World

69

Spitting Image

70

Highway Hawks

82,83

Charts

84

SPECIAL OFFERS

Amiga Covers:

No Amiga should be without our stylish software

30

Arkanoid

35

Z88:

The laptop for your lap top

72

Binders:

Organize your AUI's

81

Amikit:

What every Amiga owner needs to conquer the Workbench and CLI

91

Competition:

Win a terrific 1/2 Meg expansion for your A500 in our Dragon's Lair Comp.

80

Telephone 01-278 0333

Editorial ext: 274

Advertising ext: 280/286

Subscription ext: 274

Published by Croftward Limited

Finsbury Business Centre

40 Bowline Green Lane

London EC1R 0NE

Distributed by Comeg, Tavistock Road

West Drayton, Middlesex UB7 7QE

Printed by Chase Printers Group

Amiga User International - an independent magazine for Commodore computer users worldwide. It is not affiliated with Commodore Business Machines, Inc. or any other computer manufacturer. It is published monthly by Croftward Limited. The publishers do not accept liability for any information stated or implied in the contents of the magazine. Material or contributions may be reproduced with the written permission of the publisher. Contributors retain copyright in their articles. Contributors are responsible for any libelous statements made in their articles. Contributors are responsible for any libelous statements made in their articles.

© Croftward Limited 1989

Automatic Paper Feeders For Laser Printers

BDT's LaserMate range of automatic paper feeders for laser printers, now available from Action Computer Supplies, improves throughput by providing substantial reservoirs of paper and envelopes, so freeing operators from the chore of constant refills. Operators can also switch bins by simple commands from the terminal, invaluable where differing types of stationery are in regular use.

The range includes three models, all compatible with standard laser print engines such as the Canon SX and Canon LB8 Series II, the HP LaserJet Series II, Brother HL8 and Ricoh 4080 and 4081. Shown is the middle of the range LaserMate IIIe, which has three 220-sheet paper bins and a bin holding up to 60 envelopes. Price: £1126.00.

Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx, HA9 1WL. Tel: 0800 333 333.

The First AMIGA EXPO in Europe

The first Amiga - exhibition, AMIGA EXPO 89, in Europe, will be held in COPENHAGEN, DENMARK from the 20th of March to the 23rd of March, in the old stock exchange and trade house, called BOERSEN.

It is the very first exhibition of its kind in Europe. The exhibitors' sponsors tell us that the reason is that Denmark is the No. 1 Commodore - country, with the highest amount of Commodore units sold per head!

The organizer of the exhibi-

Code Master's Price Increase

If you have not yet heard or read about the budget game price increase, since November 1988, all new Code Masters low cost games were released with a £2.99

bition, is FORLAGET AUDIO, which is a publishing house, that amongst other titles publishes the Danish & Swedish Commodore magazine "Independent Computer". About 20 exhibitors will demonstrate the various Amiga applications, that are for sale in the European market, from text editing tools, to high end video production programs. The Organizers predict a total of about 6000 visitors, from Denmark, Sweden and the rest of Europe. The organizers plan to make AMIGA EXPO an annual event, to take place in Denmark every year in March.

Contact: Forlaget Audio A/S, St. Kongensgade 72, DK 1624 Copenhagen K, DENMARK, Tel: 45 1 91 28 33.

R.R.P. Prior to that date Code Masters low cost games had been priced at £1.99 R.R.P. Now these games are being re-priced at £2.99, effective from February 1989. Code Masters has explained the increase as "assisting in financing Code Masters exciting development programmes." Additionally the higher price positions Code Masters above £1.99 budget games. This is an accurate reflection

Accodata introduces a low cost stand for dot matrix printers

Accodata have launched a new compact multi-feature stand for all popular standard or wide-carriage dot matrix printers. It incorporates a compact paper catcher and raises the printer to the optimum angle for ease of monitoring, printing and paper feed functions.

The new Accodata micro printer stand's tray stacks over 500 sheets of continuous paper and a universal two piece construction ensures optimum support and adjustment for 80 and 132 column printers. Cable management features on either side prevent power cords interfering with paper flow. Foam pads absorb noise vibration and rubber feet prevent sliding when in use.

of Code Masters superior quality, Code Masters tells us.

Contact: Code Masters Software Co Ltd, Lower Farm House, Stoneythorpe, Southam, Warks, CV33 0DL, Tel: 0926 814132

Free smoke alarm

A Black and Decker smoke alarm is offered free with every order from Action for either five boxes or more of Dysan diskettes, or ten Dysan data cartridges. The alarm is supplied complete with battery.

Action Computer Supplies stocks full ranges of both Dysan data cartridges and Dysan 8in, 5.25in and 3.5in diskettes. All are available for next day delivery at discounted prices. Contact: Action for further information.



The Integrator and Professional for the A500

The INTEGRATOR is a basic system consisting of: a 20 Megabyte SCSI hard disk; a 3.5 inch floppy disk drive; a 2 Megabyte RAM expansion (UNPOPULATED); a real time clock; an AC power station; and software & cables.

The PROFESSIONAL is a complete system consisting of: an AMIGA 500 with 1 megabyte of RAM; a multisynch monitor; a 30 megabyte SCSI hard disk; a 2nd 3.5 inch floppy disk drive; a 3rd 5.25 inch floppy

disk drive; fully populated 2 megabyte RAM expansion; a 2088 Bridge Board; a real time clock; an AC power station; and software & cables.

All products carry a twelve (12) month Limited Warranty on all parts and labour. All software updates will automatically be sent to all registered owners at no charge.

Contact: Condor Computer Ltd, 31 Palace Street, London SW1E 5HW. Tel(01)828-9755.

The high cost of hacking

An employee on the Express and Star in Wolverhampton has been dismissed for gaining access to the computer and reading a memo on another member of staff.

Staff are now taking a ballot on whether to hold a one-day strike in protest.

Leader of the National Union of Journalists on the site supports the employee.

The case comes as the Law Commission takes submissions on whether the law should be changed to make computer hacking a criminal offence here as it is in the US.

In a report published last September the Commission concluded that current law was inadequate to deal with hacking where no fraud or criminal damage had taken place.

LAN APPLICATION SOFTWARE MARKET BOOMS

While sales of LAN hardware have surged recently, the market will not reach its potential until application software designed from the start to make use of the advantages of networks is available. Recent technical developments will allow much more capable LAN applications. This and other key findings are revealed in a new report, "Application Software Markets for Microcomputer Local Area Networks", just released by Market Intelligence Research Company.

Total revenues from all microcomputer LAN application software were \$55 million in 1984. By 1987 the

Artronics

A new name in the UK computer industry - ARTRONICS - has begun the year with a strong range of software.

Built on the foundations of the Cascade Games label - publishers of Cassette 50 and ACE - the company announced new releases for the IBM PCs and compatibles, Commodore-Amiga, and C64.

Products due out in the first quarter include serious as well as entertainment software, Artronics tell us.

The first view modules in a Master Series of PC Business Software will be PC IMMUNISE, MENU MASTER, MONEY MASTER, TIME MASTER and QUOTE MAS-TER.

Contact: Artronic, 1-3 Haywra Crescent, Harrogate, N. Yorkshire HG1 5BG, England. Tel: (0423) 525325.

Total had risen to \$234 million. Revenues will continue to rise, exceeding \$1 billion in 1991 and reaching \$4.1 billion in 1994. Growth will be especially strong in the vertical industry market segment, and the database and text-handling segments will also see high growth.

Types of software covered in this report are numerical data handling (database management systems and spreadsheets), text handling, groupware, accounting, project management, specialized vertical industry, and other. Each segment is analyzed in terms of sales revenue, revenue growth rate, market trends, and competitor analysis and market share. The market is also broken down by network operating system: Novell NetWare, NetBIOS, DOS 3.1 and Mac OS, LAN Manager, LAN Server, and other proprietary network operating systems.

Other topics include industry trends, industry history, strategies for success, competitor profiles and a listing of industry participants.

The report is based on extensive telephone interviews with marketing and technical experts from se-



NEW CONCEPT COMPUTER TRADE SHOW

The Computer Trade Forum, to be held at Olympia, 18-19th April 1989, combines seminars, conferences and an exhibition to give both vendors and distributors an opportunity to meet with the dealer community. Covering the business and leisure market, and sponsored by the British Microcomputer Federation, the event will gather dealers, distributors and hardware and software manufacturers under one roof for the first time.

Contact: Montbault Ltd, 11 Manchester Square, London W1M 5AB. Tel. 01-486 1951/487 5831.

Inkwell Systems Moves

Looking for INKWELL SYSTEMS, manufacturers of precision light pens and graphic software for Commodore computers?

Inkwell Systems has moved from San Diego and is now located at 1050-R Pioneer Way, El Cajon, CA, 92020, (619) 440-7666.

lected companies in each market segment. This information was verified by thorough study of all secondary sources available.

Contact: MIRC Europe, 55 rue Vandenhoven, 1200 Brussels, Belgium. Tel +32(2)762 2781.

Intel 80486 chip

Intel's 80487 chip, will run software three to four times faster than its predecessor, the 80386.

The chip achieves its speed via the integration of previously separate elements, for example, the cache controller and maths coprocessor.

In addition, some instructions have been hardwired allowing them to be processed at a faster rate. With the

80386 they have to be loaded from microcode.

But apart from speed the 486 and 386 are similar, sharing memory limits.

Initial supplies of the 486, likely to be used in network servers and multiuser systems, are expected in the third quarter, with PC makers suggesting the price could be as high as \$1,500 U.S.)

PROGRAMS

BASICCLI
Merge CLI Activities
With Amiga Basic

TETRIS
A Russian Game You'll Love

RHYME TIME
Rhyming for Youngsters

VIRUSX2.1
Newest Version of a Virus Killer

SETFONT
Set the Font Via Startup

SHOT
Target Practice For High Score

GADGETLAB'S 4 PROGRAMS
MatrixMenu - Slider
ColorGadget - Boole

PIXELIZE

Utility 'Averages'

IFF Art Pixels

ATOMIZE

Deletes Punctuation
And "Weird" Characters

MOST

Text Display With
Automatic Formatting

FILE2MANX

Converts Object File
For Manx C Acceptance

SCANIFF

Analyzes IFF File for
Structure, Inconsistencies

PRINT

Prepares Text File for Printing

HD

Outputs Hex Dump

To Standard Output

SHOWLBM

Lets You Choose

Picture to Display

JUMPDISK BRINGS DOWN THE PRICE OF SOFTWARE

The Original
Disk Magazine
For the ...

AMIGA

EVERY MONTH
FOR 31 ISSUES

FEB '89

Vol 4 Issue 2 No 31

JUMPDISK

25 PROGRAMS THIS ISSUE

TOASTEDBOARDBUSTERS

LateNight Chess Fix

FILTER

Copies File, Filtering
Out Non-ASCII Characters

SCANFILE

Displays ASCII Values
Of All Bytes in a File

TEXTFORMAT

Formats ASCII Text
Into Well-Behaved File

WORDCOUNT

Length in Bytes,
Words and Average Word

COPDISASM

Simple Copper List Dissembler

COMPARE

Displays Differences
Between Two Files



£8.50 inc.

THE FEBRUARY ISSUE OF JUMPDISK IS OUR BIGGEST YET! ALL OF THIS ON ONE DISK FOR ONLY £8.50 — NOT CONVINCED? TELL US AND WE WILL INCLUDE ANY ONE OF THE FISH DISKS LISTED ON THIS PAGE ABSOLUTELY FREE!
YOUR CHOICE NOT OURS.

NEW . . . NEW . . . NEW! THE LATEST FRED FISH PUBLIC DOMAIN DISKS

FISH 163

Bankn — V 1.5 of a complete checkbook system. One of the most useful PD programs.

FastPac — Board playing game similar to Go Moku, Risinaga etc. Fast-paced and quickly addictive!

Mashil — V 2.4c of "mouse adventure" program that also includes hotkeys, features of sun mouse, clicktofront, popit, title bar clock with a box, double clicker, character editor, and much more.

MemTrace — Routines to help debug memory allocation and freeing during program development.

Patch — Patches for PCFormat or PCFormat from the "EXTRAS 1.2" disk, to allow reading/writing/formatting 3.5 inch 360K (2 sides/40 Tracks/9 sectors) MS-DOS disks.

RescueMaster — A nifty little database for finding those programs that you know are somewhere (?) in the AmigaLibQik library.

View — A mouse-oriented text file reader.

FISH 164

C-Functions — A group of four little C-functions to add to your library to make your programming life easier. IJS

DiskSav — A utility which allows you to save files from a trashed Amiga DOS disk. Can also "undelete" files deleted by mistake.

HotEdit — A handy little editor that is more user friendly than "Ed".

Newton — Uses the "Newton's Method" algorithm to estimate both real and imaginary roots of a polynomial of degree 20 or less.

NewZAP — A standard Amiga purpose file search utility.

PPM — Provides the PC community with the opportunity to display IFF pictures to the best of EGA's ability. Displays Amiga pics, IBM-PC Deluxe Paint Pics, Apple II GS Deluxe Paint Pics and others in the IFF standard format. IJS

PolyRoot — Another Polynomial root-finder using the Newtonian algorithm.

Print — Printer Driver for Digital Equipment's LN03+ laser and Mannesmann Tally's MT2402 dot matrix.

Zoo — A file archiver, much like "arc" in concept. Includes some nice features that "arc" lacks. V2.0

FISH 165

Comm — VT 3.0 of extremely useful replacement for the standard console handler, provides line editing and command line histories.

CPM — Another CPM emulator. Emulates CPM with 280 processor. IJS

Persong — A program to aid in performing color separations on Epson LX 80 printers. IJS

PlotView and Plot2Am — For viewing UNIX plot files

RamCopy — Copy program designed for machines with 1 meg and only one drive. Copies in three ways.

SPUDock — Certain program that uses the narrator device to speak the time at certain specified intervals.

FISH 166

AutoGraf — Collects and graphically displays information on auto mileage, such as miles per gallon, cost per mile, miles driven, highs, lows, average etc. IJS

Crl — A C cross reference program. Prints out your code with line-numbers and complete key word cross-referencing. IJS

MultCalc — RTN type graphic calculator. Generates answers with extreme precision. Mouse driven with lots of features.

Strain — PD clone of the UNIX vi editor. V3.10e. IJS

FISH 167

ObjDec — English to (and vice versa) translator for C declarations. This little gem updates FI14.IJS

Clickon — Allows you to run clip programs from the workbench

ClosMe — Another Ingenuous paverison in the screen hack category. Does this one — surely intended to make it a classic.

DSM — Disk Manager. Scans your hard disk version with "Save" disabled of a program that will take any IFF sound or new data and save it as a totally self-contained, runnable program

MRPrint — A dI-based text file printing utility with lots of nice features, including tab-to-spaces expansion, page headers, line numbers, margin controls, scaling, and paper orientation. ARP wildcard support, and auto-restart of files containing binary characters. V3.1 IJS

Sinus3 — Enhanced version of the sinus player on FISH.

Soundemos — Some very nice demos for showing off the incredible audio power of the Amiga! 100% assembly, make sure the stereo is connected!

FISH 168

These two disks make up the "Matt Ollion SpaceI". They contain binaries and sources to the latest versions of a great deal of Matt's many programs. Please note that if you plan on recompiling any of these programs, then it is quite possible that you will need information from both disks.

FISH 170

Attn — Communications program utilizing IBM 3270 terminal emulation.

Dis6502 — A ported 6502 disassembler with support added for C64 binary files. IJS

FastText — Bitmap based fast text rendering routine written in assembly. Used in the fact that they spent up rendering of non proportional fonts.

MRBackup — A hard disk backup utility that does a file by copy to standard AmigaOS floppy disks. Includes file compression. V 2.4

PTAnim — Nifty pointer animation program, includes lots of samples, a utility program and instructions on creating your own animations.

Screen — Generates better surfaces of windows, door knobs, or other objects one could turn on a lathe. Includes the capacity to map IFF image files onto any surface that it can draw to. IJS

Turbo — Opens a small window with a gadget that when selected, turns off bipanel, sprite, copper and audio DMA, presumably to increase screen speed. IJS

FISH 171

ZCom — Modified version of Comm 1.34 that contains Zmodem send, receive and resume receive.

Maze — A couple of very nice demos for the creation and use of single-surface mazes, one of which is practically a state-of-the-art.

Screen C — A little screen of which one of which is used to set up full screen software.

Compu — assembler and linker. This compiler main pass and the assembler were compiled and tested on an Amiga A2000 with only minimal changes and they appear to work to the extent that they believe they are running on an Atari-ST, so an Amiga port should be relatively easy.

Activity — Very comprehensive program to monitor and control system activity. Monitor cpu, memory usage, ports, interrupts, devices. Close windows, screens, show loaded fonts or list Gnu code number. Clean up memory, flush unused libraries, devices, fonts etc and a whole bunch more!

FISH 172

Auton — A utility to convert raw data files (spiral, image, data, text, etc.) directly into object code which can then be linked to the main program without the need to go through the compiling process. IJS

Hindsight — A full featured T752/T1100/T102/T220 terminal emulator.

MFix — Small program to insert in the startup-sequence of the computer program. Marauder II, from Discover Software, International.

When the copy process is started, the rainbow screen is covered by a bare screen until the copy is finished. The author claims a 25% decrease in copy time.

Popho — A "shrinkable" workbench utility to show you some info that Workbench doesn't, such as free memory on external devices, chip, fast, and total ram usage and more IJS

ProCalc — A program that simulates an HP-11C programmable calculator.

Spiff — Make controlled approximations between two files. IJS

THE FISH DISKS ARE AVAILABLE AT £3.00 EACH OR £19.99 FOR A PACK OF ANY EIGHT INCLUDING VAT P&P. THERE ARE NO MEMBERSHIP CHARGES. OUR LIBRARY PACK LISTS 100'S OF TOP PD DISKS IN DETAIL. IT COSTS JUST £4.99 INC.

THIS MONTHS SOFTWARE SNIP — SUBLOGIC'S FS-11 AND INCONTROL'S PROPORTIONAL CONTROL JOYSTICK-YOKE. THE PERFECT COMBINATION — THE BEST SELLING CLASSIC FLIGHT SIMULATION PROGRAM AND THE "PILOTS" JOYSTICK-YOKE PARACHUTED TO YOUR DOOR FOR ONLY £54.90 INC. A SAVING OF £10.00! WE CAN'T INCLUDE THE GOGGLES BUT WE WILL ADD OUR SPECIAL SCENARIO DISK FREE!

WE ARE GEORGE THOMPSON SERVICES — OUR ADDRESS IS: DIPPEN, BRODICK, ARRAN, SCOTLAND, KA27 8RN. OUR TELEPHONE NUMBER IS: (077082) 234. PLEASE SEND A CHEQUE (WITH YOUR BANK CARD NO./EXPIRY DATE ON REVERSE) A P.O. OR JUST TELEPHONE YOUR ACCESS CARD DETAILS AND WE WILL DESPATCH YOUR ORDER IMMEDIATELY — SAME DAY IF RECEIVED BEFORE 1 P.M.)

ARTICLES

LUCKY 13 UTILITIES DOCS

File -> Scanfile -> IP

TextEditor -> Wordcount

Cap Disasm -> Compare

Atomize -> Most -> Print

File2Max -> ScanIF

ShowLBM

BASICCLI

Run Anything from Basic

VIRUS.2.1

Kill That Virus! Latest Version

Of a Creep Ouasher

BASIC GADGETS

MatrixMenu, Slider

ColorGadget, Boole

AMIGADOS PRIMER

A Smorgasbord Of Commands

TEXTRIX

Documentation

BEND THE CLI

To Your Will

Some experiments

NEWSBREAKS

Commodore Shows What's New At COMDEX

PIXELIZE

Averaging IFF Art Pixels

SHOT

Arcade Game

TOasted BOARD BUSTERS

"Thumper" On Trial

READERS' FORUM

You're a Testy Bunch This Month

10 REVIEWS

Magellan - C880 Drive

Undrivel - Twindrive

Dragon's Lair - Virus

A-Pro Graphics Tablet

Audiomaster - Solitaire

Ebonstar - Grid Start

Aunt Arctic Adventure

Aunt Arctic Adventure from Mindware International of Ontario, Canada is a new multi-level arcade game in which Charlie the Chimp has talked his good friend Penguin Pete into helping him rescue his Aunt, who has been kidnapped by Big Borus, the evil ringmaster, who has forced her to work in his circus in the Arctic. You must battle your way through each of 50 levels (each of which is four by four screens in size) to rescue his Aunt.

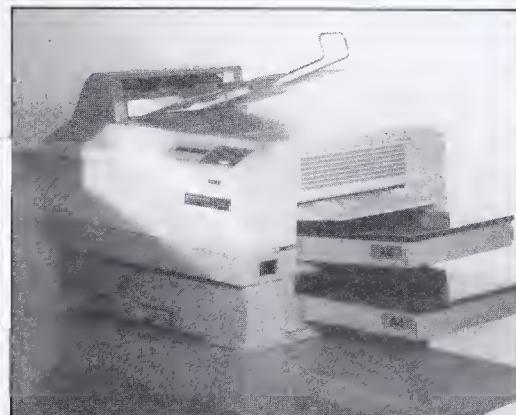
The new game supports both players on screen at the same time operating as a team. There is also a one-player mode.

Aunt Arctic Adventure is priced at \$39.95, and is the latest entertainment product from Mindware International, makers of Charon 5, an action/strategy game. Other products from Mindware include Page-Lipper Plus F/X animation editing and compiling software, and Descartes! mathematical graphic system. For more information contact Mindware International, 110 Dunlop St., West, Box 22158 Barrie, Ontario, Canada L4M 5R3. Tel. (705) 737-5998.

LEASED LINE MODEM MARKETS TO DOUBLE

The global leased line and private line modem markets are forecast to generate more than \$2.3 billion in revenues by 1994 representing a two-fold increase over 1984's revenues of \$1.3 billion (£800 million).

This strong growth and highlights of other expected developments are examined in a new study, "Leased Line Modem Markets", published by Market Intelligence Research Company. The report analyzes the leased line and private line



EXTENDED MEMORY LASER PRINTER

Mannesmann Tally has introduced the MT910EM, a 10 page a minute machine with 2Mb of memory that can print a full page of high resolution 300x300 dpi graphics. Priced at £3399.00, the printer is suitable for graphics applications where a high level of detail is needed, said the company.

With a recommended work load of 5000 pages per month, the MT910EM offers 300,000 pages per month, the MT910EM offers 300,000 page engine life before refurbishment. Resident printer emulations include HP LaserJet

Plus, Epson FX, IBM ProPrinter and Qume Sprint 11 Plus. As standard there are 24 resident fonts, with a full range of HP compatible fonts in cartridge or software format.

The launch of the MT910EM completes the company's mid range page printer lineup, which, in addition to the standard MT910, includes a sort/er/collator, desktop publishing and graphics language models.

Contact: Mannesmann Tally, Molly Millar's Lane, Wokingham, Berkshire. Tel: (0734) 788711.

modem markets for 1984-1994 in terms of modems that transmit across telephone wires, fibre optic cable, coaxial cable, and by using radio waves. The largest market segment discussed is modems designed for transmission across leased lines provided by telcos.

High-speed leased line modems are experiencing the most growth, with annual revenues approaching one-half billion dollars. This report identifies which modem market is the strongest market segment. Additionally, this study provides a background of the modem industry, including major trends, applications and market factors.

Price: \$1495. Contact: MIRC Europe, 55 rue Vandenhoven, 1200 Brussels, Belgium.

TOMCAT

[An illustration of a stylized globe with a map of the world, with the word 'TOMCAT' written across it.]

Tomcat by Players, places you in the cockpit of the powerful F14 Tomcat fighter. Reek havoc across 4 devastating ground fire power, destroy enemy tanks, ground installations, gun boats and helicopters. Each level culminates in a head to head confrontation with an awesome mechanoid adversary, players tell us. Available on C64, coming soon for the Amiga. Price: £11.99 for 8 bit versions, £14.95 for 16 bit versions. Contact: Mercury House, Calleva Park, Aldermaston, Berks. RG7 4QW, Tel: (07356) 77421.

BYTES & PIECES SLASHES HARD DRIVE PRICES

Now there is a price drop, hard drives will become more affordable to many people, Bytes & Pieces tells us.

Their line includes: 2.5 megs total with clock for the A500 £475, 2meg total for the A1000 £399, 512K for A500 £119, 42 meg hard drive system A500/A1000 £475 complete, and 84 meg system only £699.

Bytes & Pieces also specializes in additional hard drives and upgraded chips for A500 and A1000 machines. Hard drive systems can be from 20 megs to 380 megs and tailored to the user's requirements. Contact: Bytes & Pieces, 37 Cecil Street, Lytham, Lancashire, FY8 5NN. Tel: 0860254344.

New Fleet Street Editor

Fleet Street Editor, a popular desktop publishing package in the PC market has been expanded and updated to appear to an even wider audience, Mirrortsoft tells us.

New Fleet Editor is for anyone — from secretary to managing director — who wishes to enhance the appearance of their word-processed documents.

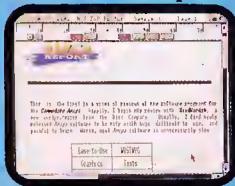
The major change to the program is the inclusion of Bitstream's Fontware Installation Kit, the Charter Roman typeface on disk, and a selection of ready-to-use soft fonts. This significant addition to the New Fleet Street Editor package has been made for two reasons:

HP Laserjet and compatible laser printers are fast replacing daisy wheels printers in many offices, and it effectively gives HP Laserjet+/Series II (and compatibles) users PostScript quality output and a wider choice of fonts.

KINDWORDS

MORE KINDWORDS

Impressive reviews? They'll be lost for words when they see the new KindWords 2.0. It's still as easy to use as its famous predecessor but now boasts a new

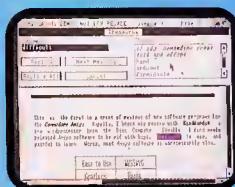


100,000 word English dictionary licensed from Collins, a 470,000 word thesaurus and automatic hyphenation.

So it knows the difference between 'colors' and 'colours' and how to use them. Because with KindWords you can easily import graphics into your text documents and produce professional documents that really impress.

As it was designed specifically for the Amiga, KindWords works with your computer, not against it. Pull down menus and full help facilities are used to the maximum advantages - so advanced features such as spell checking and mail merging are easily accomplished.

There's a new extensive font library which combines

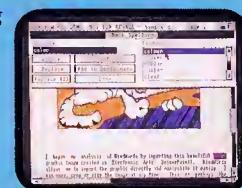


with graphic editing facilities that make KindWords an extraordinary word processor at an unbelievable price.

Which only goes to prove that sometimes you should believe what you read in the press.

Existing KindWords users can upgrade their software for £14.95 inc VAT by calling 010 331 455 310 53 or write to Disc Company Europe, 1 rue du Dôme 75116, Paris, France. Visa, American Express accepted.

Dealers should call Amiga Centre 031-557 4242, GEM 0279-412441, HB Marketing 0895-444433 or Microdealer 0908-74000.



Price

£49.95
inc VAT

THE DISC COMPANY

"The excellent KindWords includes everthing you'd expect to see in an Amiga word processor with many extras."

ST Amiga Format

"KindWords is considerably cheaper than most Amiga word processors... its documentation is well produced and readable... contains quite a number of advance features... good value for money"

Amiga Computing

"KindWords is stylish and uncluttered... simple and elegant with a lot going for it... KindWords is a program written with care, everything about it shows consideration for the user."

Amiga User International

"I found KindWords both powerful and flexible... I think most users will be delighted with KindWords' logical design and power."

Commodore Magazine

"KindWords Superfonts produce attractive, high-quality printouts even from inexpensive dot-matrix printers."

Amiga World

Cartoon animators never had it so good... Peter Lee stops feeling Goofy and gets Happy with Gold Disk's new animation utility which might make even Grumpy smile!

The standard of animation programs for the Amiga has grown steadily, both in terms of results and complexity. It seemed that the only way to pack more power into a piece of software was at the expense of ease of use; friendliness took second place to features, and as results got better, the pain of achieving them rose proportionally. But MovieSetter, a new mid-price entry into the market from Gold Disk has broken the trend and introduced a full-feature push-button animation package. Its simplicity and ingenuity look set to establish it as a classic, easy to use entry point into this rewarding field.

All control is through the mouse, or via keyboard shortcuts, and in true WYSIWYG style, what you see on screen is exactly what you will get on playback. You can actually animate on screen, which is a great help towards cutting out time-wasting edits; it also lets you compose



on the fly by displaying each frame the instant you make any amendments to it.

The package itself is of the usual Gold Disks quality; the program disk and a data disk containing IFF pictures, sounds and other useful animation aids, are unprotected. Instead, MovieSetter relies on a password entry technique which prevents access until a particular random word from the manual is typed in.

This is fine by me, because I would rather have to glance through a manual than be unable to make backup copies of the precious software. MovieSetter will work on a bare 512K Amiga system, but to get the most out of its features you certainly need at least 1 meg - otherwise you are dogged by the irritation of having to load each of the program's major

features independently instead of having them memory-resident.

Users with 512K can trade off this inconvenience and load in MovieSetter pointless unless you are animating line drawings. They can get the full-blown features only if they load each section as needed. Still, lengthy animations can still be created even with this amount of memory. The program works on PAL mode, and can display full 32 colour IFF images

"The power and flexibility of MovieSetter is contained in the Scene Editor. It is here that you create your story, and breathe life into it by adding movement."



on screen. It is split into three distinct tools : MoviePlayer, SceneEditor and SetEditor. MovieSetter is an integrated tool which contains this trio of utilities. The power and flexibility of MovieSetter is contained in the Scene Editor. It is here that you create your story, and breathe life into it by adding movement.

Apart from its ease of use, MovieSetter's major attraction has to be the ability to enable you to see your work progressing whilst you are creating it. Probably the first thing you will want to do is load in a background picture against which the action will take place. There are a number of art screens on the supplied data disk, but any IFF screen can be used, in either full video overscan (352 16 240) or the standard 320 16 200 resolution.

These backgrounds can appear in a variety of ways thanks to half a dozen snazzy transitions. And what's more, these backdrops can be scrolled either vertically or horizontally while the action is going on in the fore-

ground. It is difficult to over-emphasise the difference this little trick makes to a video presentation. Provided your background is designed with this in mind — with a seamless 'join' at the left-right or top-bottom edges -apparently seemingly endless street scene or vast tract of space can be simulated by scrolling one image repeatedly throughout an entire scene.

"The program plays back in anything from 60 frames to 1 frame per second, depending on how many colours you have on screen, and what is going on in your scene."

brushes including freehand, straight line, brushes, rectangle, and also has fill and oval drawing features, and a nice magnification option for touching up your artwork. Brushes can be defined then resized, rotated or flipped -which opens the way to some clever uses in terms of characters coming out of the screen and getting bigger, or a single character being flipped and re-used as an image moving within this editor, which incidentally boasts a cute film-strip border. You can call up a scrollable clipboard window where it is possible to store a number of brushes (or faces as they are called) before incorporating them into a set sequence.

Helping you make sure your animation cells will work out are a series of tools which act like a VCR in that they will take you to the start or end of a set of faces,

frames or moving the order around. And to make sure the animation is as smooth as possible, you can specify a registration mark on a cell to act as the reference point for the animation; MovieSetter also uses this as the hot spot in animations -the point in each cell which is used when plotting

Setter

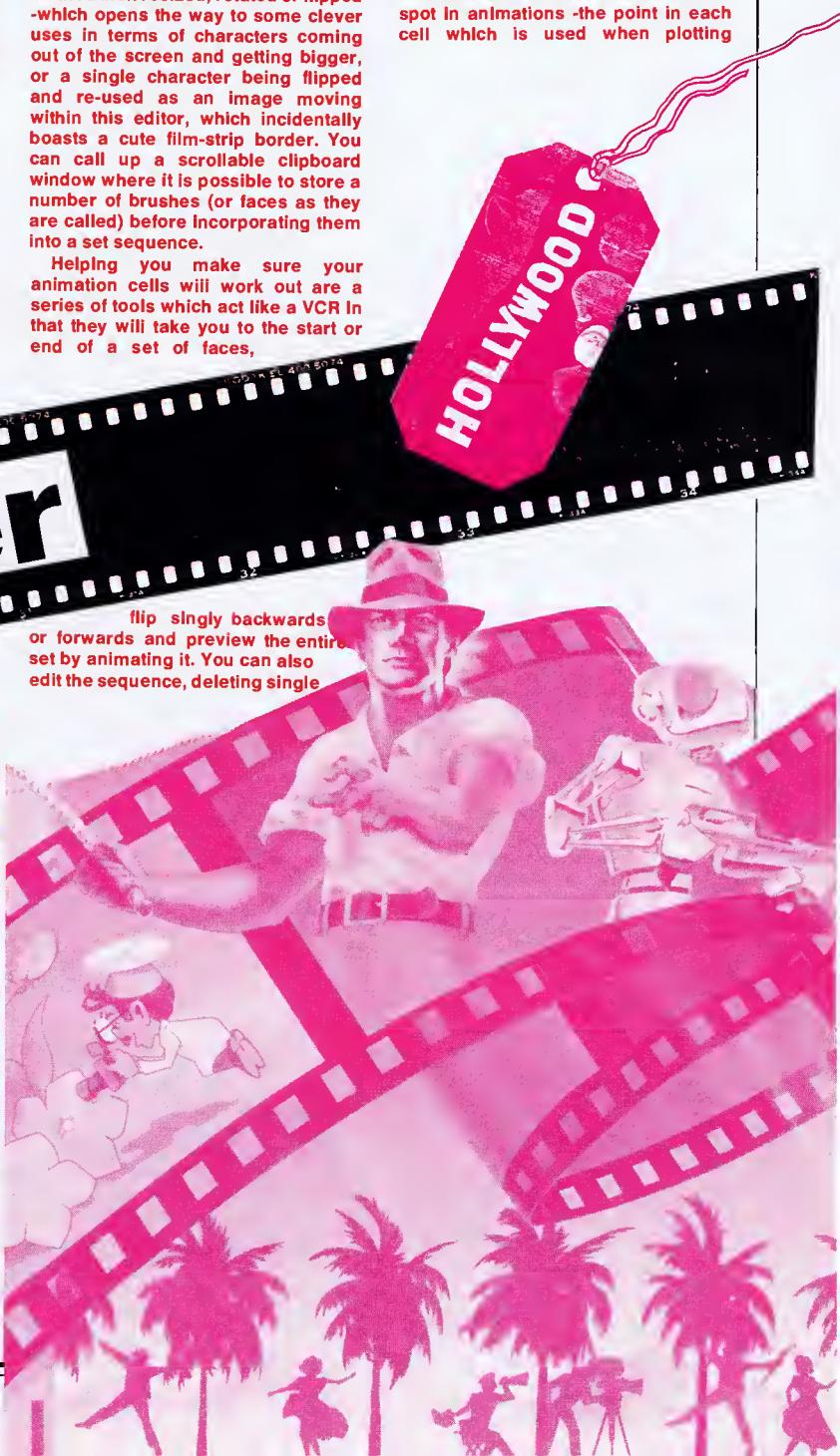
The next features you will want to add are the bits and pieces which will be animated. These can simply be static pictures — a cloud gliding by for instance — but why waste computing time on something so easy? The real benefit of using MovieSetter is that you can design a set of images, each slightly different from the last, which when sequenced through give the appearance of movement.

This is how they do cartoons in the movies (in films such as Who Framed Roger Rabbit); the program plays back in anything from 60 frames to 1 frame per second, depending on how many colours you have on screen, and what is going on in your scene, realistically with 32 colours you can expect around 10 frames per second, which although a pretty low rate, does give adequate and smooth results.

Controlling a set of images is done from within the Set Editor, an impressive utility which combines a full-feature art program and a pencil tester for scanning through images. You can create new images here, or load in and edit ones drawn with the likes of DPaint.

The set editor has eight built-in

flip singly backwards or forwards and preview the entire set by animating it. You can also edit the sequence, deleting single



"Pro's who cut their teeth on the likes of Aegis Animator, Deluxe Video and more recently Fantavision will be stunned at the power of MovieSetter."

movement. Some guesswork is still needed, but this feature gives you more of a lighting chance. Once complete, these cells can be incorporated into your animation; this is achieved through track editing, and it is the program's most elegant feature.

If you have a sequence of, say, six cells of a man running, his legs and arms moving slightly in each image, then building him into the script is just a matter of clicking the mouse button. You decide on his route across the background, and click the mouse; image one is registered, and amazingly the second image has become the mouse pointer, and you can move it around and click again, leaving the program to figure out the in-betweening.

Each time you move the graphic and press, the next drawing in the sequence becomes the current 'brush', and they cycle through all six until you have plotted his course across the screen.

And all the while, if specified, the background will scroll, and any other tracks containing different images will be showing their position on screen. This is such a constructive feature of the program that it is hard to think of a better way of doing it.

As an aid to editing, you can play your scene with the current track leaving behind latent images so you watch a face's history. This helps you plan out a new track to interact with this existing one. You even have the luxury of guides, which will snap and constrain your movement in a number of ways - horizontal, vertical and elliptical, with the ability to specify a starting velocity and acceleration factor. But, as Porky Pig might say, walt tolks, th-th-that's not all... Because MovieSetter incorporates sounds too - in variable stereo.



Place objects over backgrounds and position their travelling path by pushing a button. The program does all the integration and cycling for you.

There are a number of 'clunks' and 'ker-ploings' on the data disk in true cartoon mould, and these can be incorporated anywhere within the script as an event. Sounds of your own, provided they are in IFF format, can just as easily be loaded in and played on cue. Pitch and octave are

both definable, and in addition two stereo or four mono sound FX can be played simultaneously. As far as post-production is concerned, the program is just as flexible and easy to use, allowing comprehensive editing at any time. Helping the process along is the storyboard, a sort of visual database of all the events which go to make up your animation.

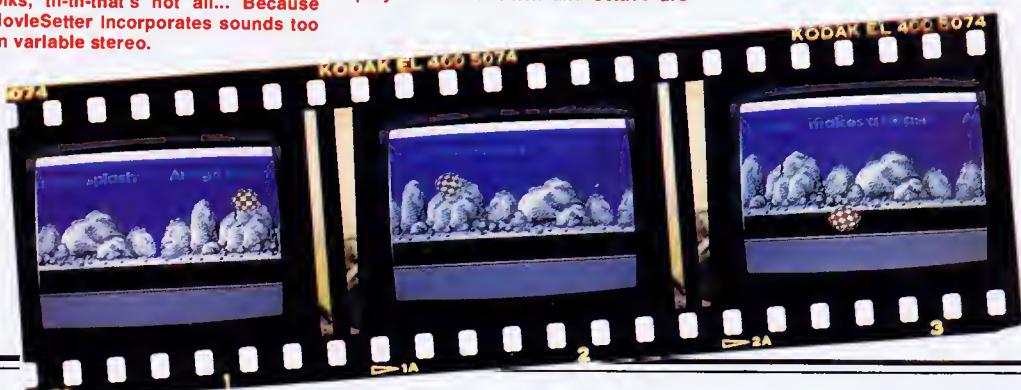
The type of event to be displayed by the storyboard can range from a background change to the start of a new track. It is then a simple matter to enter the relevant frame and make any amendments. It is possible to save productions complete, with all sets and backgrounds in one vast tile, and these can be distributed for playback to friends, or you can save your work just as small scripts, which will need all the parts of the animation available at the time of running. There is also total colour control, including colour cycling for pseudo animation.

CONCLUSION

This is one animation package which will appeal to experienced users and novices alike; pro's who cut their teeth on the likes of Aegis Animator, Deluxe Video and more recently Fantavision will be stunned at the power of MovieSetter, and newcomers to this fascinating and worthwhile presentation utility will be right at home because of its extremely friendly control methods. I had an animation up and running 10 minutes after scanning the manual. This is not to say I would consider MovieSetter in real competition with the heavy-duty professional video effects programs, simply because the resolution it uses is so low. But as far as home entertainment, office presentation and classroom work goes it is a time-saving and beautifully crafted utility which would be my first choice.

Price: £69.95

Supplier: Digipro Ltd, Enterprise House, Howard's Grove, Southampton



LONDON'S LARGEST DISPLAY OF PRINTERS MONITORS
COMPUTERS AND PERIPHERALS

HI VOLTAGE

The London AMIGA Centre

AMIGA A500 INCLUDING:-
MOULATOR · MOUSE · WORKBENCH · BASIC · TUTORIAL · UTILITIES · MANUALS · PHOTON PAINT · JOYSTICK · FIVE GAMES · 23 PUBLIC DOMAIN TITLES £359

AMIGA B2000
INCLUDING:- MOUSE · WORKBENCH · BASIC · UTILITIES · MANUALS · FREE 3.5" INT DISK DRIVE

£999

AMIGA A500 PLUS
STEREO MONITOR £559

AMIGA B2000 PLUS
STEREO MONITOR £1199

PRINTERS	SOFTWARE	ACCESSORIES
Citizen 1200 £129 Citizen 180E £159 Citizen MSP15E £215 Citizen HQP40 £379 Citizen HQP45 £335 Commodore MPS1200 £129 Epson LX800 £169 Epson FX850 £287 Epson FX1050 £397 Epson EX800 £459 Epson EX1000 £499 Epson LQ500 £269 Epson LQ850 £424 Epson LQ1050 £559 Epson LQ2550 £919 Epson DFX5000 £1159 Micro PMP135+ £139 Hewlett Packard Deskjet 589* NECP2200 inc S/Feed £271 NECP6+ £469 NECP7+ £579 Panasonic KXP1081 £138 Panasonic KXP1540 £459 Star LC10 £175 Star NX15 £289 Star LC2410 £295 Star ND15 £359 Star NR15 £429 Star NB2410 £429 Star NB2415 £545 Star NB15 inc S/Feed £619	ACCOUNTS £18 COMMUNICATIONS Diga £36 Online £30 Ruby Comm £63 DATABASES Acquisition VI.3 £160 Microfiche Filer £45 Superbase Personal £33 Superbase Personal II £55 Superbase Professional £131 DTP Comic Setter £44 Pagesetter £54 Professional Page £160 GRAPHICS Animate 3D £80 Animation Effects £25 Animation Flipper £28 Animation Stand £25 Butcher 2 £18 Deluxe Paint Art Disks £6.50 Deluxe Paint II £42 Deluxe Print £16 Deluxe Print II £43 Deluxe Productions £89 Draw Plus £120 Express Paint 2 £42 Fancy Fonts 30 £35 Fantavision £36 Introcad £36 Lights Camera Action! £39 PageFlipper + F/X £79 Photon Paint £43 Pixmate £33 Sculpt 3D £52 Sculpt 4U £280 The Director £32 TV Show £42 TV Text £42 Videoscape 3D £86 Videotiler £70 INTEGRATED Critic's Choice £99 EXPORT CUSTOMERS SUPPLIED TAX FREE. Contact our specialist export department on 01-686 6362	AMIGA 2000 NEC 3.5" External Drive £77 NEC 3.5" Internal Drive £69 A1010 3.5" External Drive £149 A2010 3.5" Internal Drive £149 A2088D XT 8ridgeboard £435 A209420Mb Hard Disk £380 A20582Mb Board £550 Impact 20Mb Hard Card £505 Impact 45Mb Hard Card £710 Micron 2Mb Board £500 8Mb Unpop. Board £180 Flicker Fixer £330 AMIGA 500 A501 1/2Meg RAM £124 A520 Modulator £21 Dust Cover £5 NEC 3.5" External Drive £77 A1010 3.5" External Drive £149 Easy/Tablet £260 VIDEO AND SOUND Digiview Gold £105 Perfect Vision £175 Digipic £200 Genlocks: Rendale AB802 £245 AB806 £705 CBM A2300 FutureSound £69 Perfect Sound £65 MONITORS CBM1084S P.O.A. Philips BB33 £225 Philips Tuner £60 Taxan 770+ £485
COLOUR PRINTERS Citizen HQP40 £429 Epson EX1000 £529 Hewlett Packard Paint Jet £799* NECP6+ £554 NECP7+ £644 Star LC10 £229 Xerox 4020 £949		
LASER PRINTERS Ast Postscript £2689* Brother HL-8 £1529 Epson GQ3500 £1149* Hewlett Packard Laser Jet II £1399* Star LP8 £1379* * inc. 1 yr. on site maintenance		

Mail Order + Export Hot Line Phone 01-686 6362

DELIVERY FREE UK MAINLAND

Same day delivery call for details
Send off or order by phone quoting your Access, Visa No.,
Phone 01-686 6362. Immediate despatch on receipt of order or
cheque clearance. Or Telex your order on: 946240 Attn 19001335.

ALL PRICES EXCLUDE VAT.

OPEN MONDAY-SATURDAY 9 AM-5.30 PM

OPEN MONDAY-SATURDAY 9 AM-5.30 PM

ALSO A VAST RANGE OF DISK DRIVES, JOYSTICKS, DISK BOXES, INTERFACES, SHEETFEEDERS, ETC.

HI VOLTAGE Dept. AUI, 53-59 High Street, Croydon, Surrey CR0 1QD. Fax: 01-681 8939. Tel: 01-686 6362

Prices correct at copy date. Subject to change without notice due to currency fluctuations etc. E. & O.E.

StarBoard2

Increase your storage space - and make room for the future - with a new upgrade for the A500 tested by Peter Lee.

The upgrade path is a rocky one for computer owners; we need to have one eye on the bank balance, and the other on the future. Getting the newest add-on may bring short-term benefits, but with computer innovation leaping forward at a lightning pace, you have to leave the way open for potential improvements.

A case in point would be a peripheral which uses the expansion bus but does not have a pass-through connector. If all manufacturers thought like that, users would quickly reach a technological dead end. It is comforting, therefore, to come across a peripheral which is tailor-made for bigger and better things - the Starboard2 RAM expansion.

Produced by Texas-based MicroBotics Inc, the unit won many friends among the early core of Amiga 1000 users, and this same quality has been turned towards the A500 and A2000, giving A500 users in particular something that will lift their computer out of the games rut and allow the potential for some constructive professional applications.

The StarBoard2 is a solid, sturdy add-on which is about size and weight of a brick; it measures 27.5cm long, 11.5cm wide and stands 7cm high. Fitting neatly into the Amiga 500 expansion bus (under the snap-off cover on the left-hand edge), it matches the machine's casing colour. However, because it is so hefty, I found it advisable not to move the computer too much with the unit attached - otherwise the 500's edge connector could well be damaged.

The basic unit, which consists of a bare board ready to accept a megabyte of memory by the addition of 256K chips, can be bought for £199.95; with the chips added, the cost rises to £444.95 (with 512K additional memory, the cost is £324.95). With 2 megabytes installed, the price is £699.95; this

necessitates the fitting of an upper-deck to the inside of the unit.

Compared with expansions that do not possess the added attractions of additional upgrades, the pricing is well structured considering the cost of RAM chips (currently £125 per half meg). The benefits of having additional RAM are self-evident - the extra money is vital for running much of the professional software available. Word processing, spreadsheets, art and animation packages thrive on greater capacity and operate more quickly and efficiently using a RAM drive. Also, professional and entertainment software is appearing that needs at least a megabyte to run.

Given that there are a number of memory expansions available, StarBoard2's outstanding feature is its facility to expand in a number of interesting and powerful ways. For example, the StarBoard2 has the capability to install a SCSI module, which then paves the way for adding units that conform to this industry-standard Small Computer System Interface (typically, a hard disk drive). The SCSI interface fits inside the casing and connects with the outside world (and the hard drive) via a 25-pin D-connector cable. Priced at £75, it is accompanied by a disk of excellent software for managing your drive, together with a neat piece of diagnostic software.

In addition to the interface, you also receive the bonus of a battery-backed clock and calendar; even when the Amiga is turned off, the time is still kept.

The actual manual for the SCSI is included as a Text.Ed file on disk, which is inconvenient for people wishing to get stuck in straight away. But the manual is thorough and unambiguous, which is a good thing where do-it-yourself electronics are concerned!

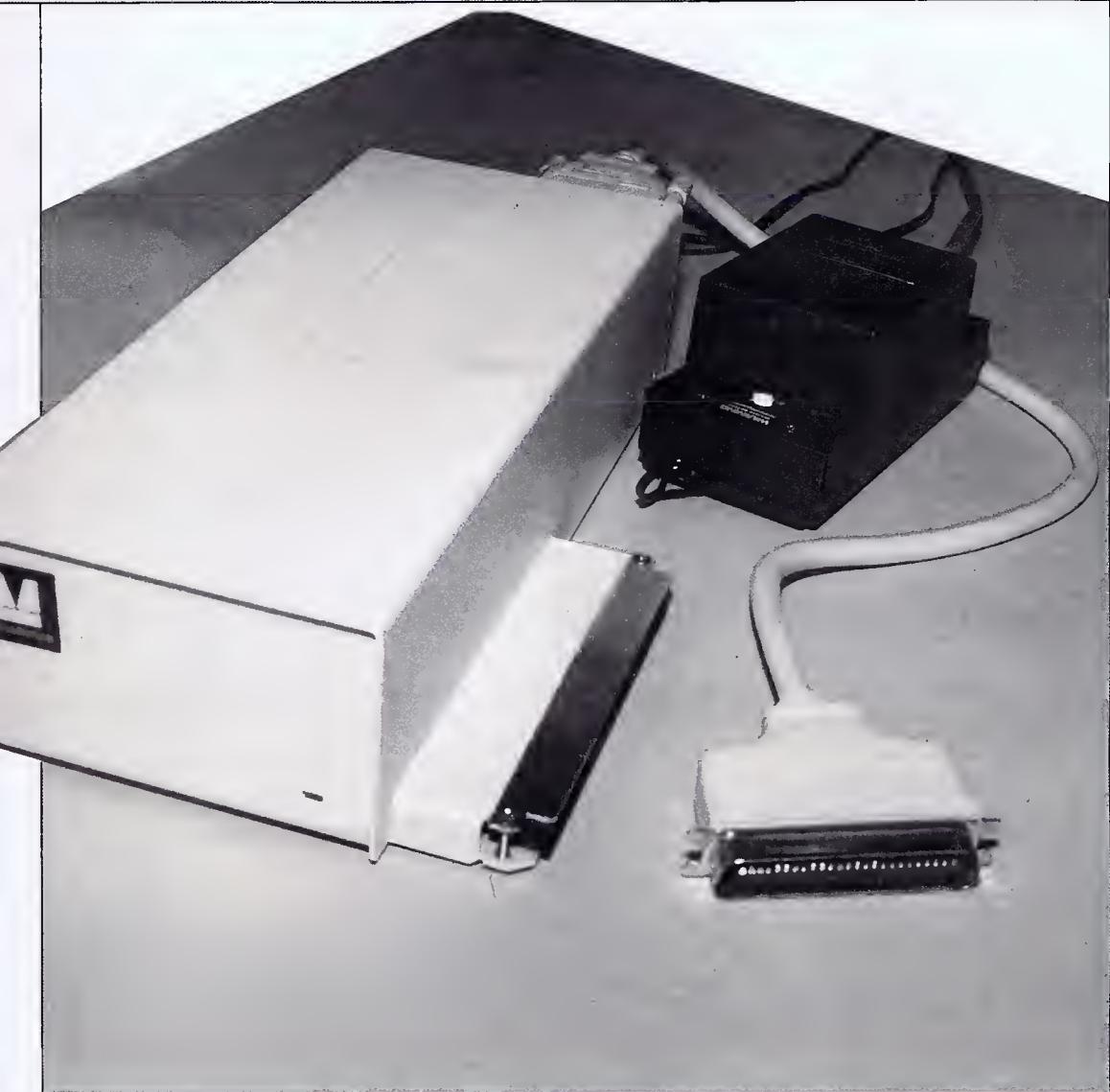
Even with 2 megabytes and a SCSI

interface fitted, the StarBoard2 has room for more expansion. For £55 you can add a MultiFunction daughter-board. Its features include: a battery-backed clock; support for parity checked memory (which unfortunately requires the additional purchase of four 256K chips for each meg of memory installed); a socket and circuitry for the Motorola floating point unit (MC68881RC12A) for applications requiring fast maths functions - (the maths chip feature is supported in software via a set of IEEE double precision libraries); and a StickyDisk option - the ability to specify a fast RAM disk which will keep data intact even after a warm re-boot.

"If an error is detached by a comparison between the memory-resident data and the saved data, a recoverable Guru will be flashed for you to take appropriate action."

As far as the parity checking memory is concerned, this feature would be of most use to people dealing with large amounts of data. If an error is detached by a comparison between the memory-resident data and the saved data, a recoverable Guru will be flashed for you to take appropriate action.

The maths chip itself has to be purchased separately, and at £115 it is a luxury you will have to justify. The chip sits quietly on the board until called by a piece of software. At that time, its 12.5 MHz power will be transparently brought in to speed up number crunching.



The StarBoard2 features a bus pass-through, which emerges on the top. The pass-through is a novel idea that prevents the computer set-up getting too wide for the desk. Up to two StarBoard2s can be linked to the A500, and because the power comes from an independent 9v supply, there is no need to worry about too big a drain from the Amiga itself.

The unit tested was installed on an A500, but A1000 users can also purchase a StarBoard2 module, which is powered by the computer itself. The expansion paths outlined above are all relevant for both machines.

CONCLUSION

The arrival from America of the StarBoard2 for the Amiga 500 should give owners of the computer a whole new outlook on life. It will enable serious users to have access to the wealth of top-quality, memory-hungry software which exists, and at the same time open the door to the world of hard disk storage. The unit is sturdy and robust, though I would

hesitate to recommend the fitting of interior boards or RAM chips unless you have some experience - one flash of static can cause serious damage. The price may seem high, but it compares favourably with other expansions that do not have the same potential. If bigger and better is your aim in computing, then StarBoard2 deserves your attention.

*Contact: Oasis Services Ltd., 17 Andrew's Place, Eltham, London SE9.
Tel. 01-859-4936*



MIDI



Paul Andreas Overaa continues his series on Midi and the Amiga

The Amiga's serial device is capable of directly supporting the reception and transmission of serial data at 31.25 KBaud so with a suitable MIDI interface connected to the RS232 port it is not too difficult to get some sort of programmed MIDI link up and running. Here is a brief rundown on the conventional way to set up the serial device followed by some extra details you may need as far as MIDI data goes...

To use the Amiga's serial device you need to create a 'reply port'. This port is used by the serial device to send your program information and its creation involves a straightforward call to the CreatePort() function. If the CreatePort() function fails it will return a NULL pointer - so some check should be incorporated in the code to ensure that no problems have occurred. Here's some typical code...

```
if((g_reply_port_p=(struct PortL *)
```

```
CreatePort(SERIALNAME,0))==NULL)
```

```
{error_flag=NULL;}
```

SERIALNAME is a pointer to a null terminated string. In this case I have used a macro, but CreatePort("Port Name",0) etc., would have done the same job. The variable 'g_reply_port_p' would have been defined as a pointer to a 'Port' structure... so the (structPort*) casting is just to keep the compiler happy.

The second thing to do is to create a serial request block so that your program can send the serial device details of the operations to be performed. Here's the arrangement of the request block shown as the C structure defined in the serial.h header file...

```
struct IOExtSer {
```

```
    struct IOStdReq IOSer;
```

```
*     STRUCT     MsgMode;
```

```
*     APTR      Succ;
```

```
*     APTR      Pred;
```

```
*     UBYTE     Type;
```

```
*     UBYTE     Pri;
```

```
*     APTR      Name;
```

```
*     APTR      ReplyPort;
```

```
*     WORD      MNLength;
```

```
*     STRUCT    IOExt;
```

```
*     APTR      io_Device;
```

```
*     APTR      io_Unit;
```

```
*     WORD      io_Command;
```

```
*     UBYTE     io_Flags;
```

```
*     UBYTE     io_Error;
```

```
*     STRUCT    IOStdExt;
```

```
*     ULONG     io_Actual;
```

```
*     ULONG     io_Length;
```

```
*     APTR      io_Data;
```

```
*     ULONG     io_Offset;
```

```
*
```

```
        ULONG     io_CtlChar;
```

```
        ULONG     io_RBufLen; /* length of serial buffer */
```

```
        ULONG     io_ExtFlags; /* flag extension area */
```

```
        ULONG     io_Baud; /* requested Baud rate */
```

```
        ULONG     io_BreakTime; /* break signal duration */
```

```
        struct    IOTermArray io_TermArray;
```

```
        UBYTE     io_ReadLen;
```

```
        UBYTE     io_WriteLen;
```

```
        UBYTE     io_StopBits;
```

```
        UBYTE     io_SerFlags;
```

```
        WORD      io_Status;
```

};


Compumart

A Great Deal More
For a Good
Deal Less!

NEW

COMPUMART **TENSTAR** Games Pack

- ★ Amegas
- ★ Art Of Chess
- ★ Barbarian, Ult Warrior
- ★ Buggy Boy
- ★ Ikari Warriors
- ★ Insanity Fight
- ★ Mercenary Comp
- ★ Terrorpods
- ★ Thundercats
- ★ Wizball

worth £14.95
worth £24.95
worth £19.95
worth £24.95
worth £24.95
worth £24.95
worth £19.95
worth £24.95
worth £24.95
worth £24.95

Only From
Compumart...

FREE

Software, Mouse
Mat and T.V.
Modulator with
every AMIGA A500

WORTH OVER
£260 Only

CREDIT
TERMS
AVAILABLE

Phone for other great Amiga deals !

From as little
as £159.85 and...
FREE

A FREE STARTER PACK
With every PRINTER
Only from Compumart
► 1000 sheets listing paper
► 1 EXTRA printer ribbon
► PC printer interface
cable
**WORTH
OVER £30**

CREDIT
TERMS
AVAILABLE

PRINTERS



PRINT	9 Pin	CITIZEN 1200	PANASONIC KX-P1201	CITIZEN 130	AMSTRAD OPM-1200	PANASONIC KX-P1202	AMSTRAD OPM-1240	PANASONIC KX-P1200
HEAD	24 Pin	•	•	•	•	•	•	•
COLUMN	80 Col.	•	•	•	•	•	•	•
WIDTH	132 Col.	•	•	•	•	•	•	•
PAPER	Fringeline	•	•	•	•	•	•	•
FEED	Tractor	•	•	•	•	•	•	•
PRINTER	Draftcps	120	120	175	160	160	288	
SPEED	NLQ cps	25	28	30	40	35	95	
INTERNAL BUFFER	4K	1K	4K	2K	1K	8K		
OUR PRICE	£159.85	£175.95	£182.65	£217.35	£263.35	£428.85		

SUNDRIES - For Your **AMIGA**



LISTING PAPER

2000 sheets
11" x 9½",
60gsm.

£14.95

JOYSTICKS

The new 'Microblaster'
joystick from REPLAY,
order today and
Take Control

£12.95



MOUSE MATS

High quality Mouse

£5.95



DISK STORAGE

MJ 70L Lockable 3½" disk
storage box, holds
up to 70 disks.

£12.95

WITH 2 FREE 3½" DISKS

Why buy unlabelled disks when you can
have Commodore branded quality at prices
like these !!!

NEW	5.25" SS/DD 48TPI	5.25" DS/DD 48TPI
	£7.95	£9.95
	5.25" DS/HDMAX1.6MB	3.5" DS 135TPI
	£15.95	£17.95

Prices are per box of 10 disks

Commodore

The Original Diskette

Higher Quality, Lower Price

SAVE 25%

FREE

For a LIMITED PERIOD ONLY
Buy 3 boxes of any one type of disk and get a
fourth box ABSOLUTELY FREE !!!
e.g. Buy 3 boxes of 3.5" DS Disks and receive
another box of 3.5" DS Disks

FREE OF CHARGE !!!

SAVE £17.95

24 HR ORDER HOTLINE (0509) 610444

Superb
Service

Great
Guarantees

Better
Back-up

- ▷ Usually same day despatch on most items
- ▷ FREE, next working day delivery on all hardware, allow 2-5 days for other items
- ▷ Large stocks for immediate despatch
- ▷ FAST, efficient service

- ▷ If any item proves to have a manufacturing fault within 30 days we will replace free of charge or refund in full
- ▷ After 30 days and within the warranty period, we will repair at our expense

- ▷ Friendly advice and after sales support
- ▷ Any problems quickly resolved to your complete satisfaction
- ▷ Special offers to existing customers
We aim to please ... and usually do!

Prices/delivery subject to availability and only applicable to UK mainland, N. Ireland and BFPO's. E&OE

Compumart are licensed credit brokers. Simply ask for written details.

A Great Deal More, For a Good Deal Less

COMPUMART LTD
FREE POST DEPT AUI
LOUGHBOROUGH
LEICS LE11 0BR
TEL: 0509 610444
FAX: 0509 610235



With nine out of ten coin-op conversions being ported from the ST versions, it is left up to the producers of "original" games to exploit the extra hardware the Amiga possesses. Rainbow Arts have proved themselves at this in the past with Jinks and Great Giana Sisters, but their latest, Denaris surpasses all previous efforts and emerges as the best shoot 'em up yet to appear on the Amiga.

Almost as soon as the game begins, your first bolt-on upgrade icon drifts its way across the screen. Pick it up and the equipment homes in on the front of your ship, forming a shield against head-on flak. You can also use it to clear the way ahead by shooting it off the entrance to the space cruiser and a second icon comes your way. This time you get the benefit of diagonal-firing reflective lasers, essential for surviving the many surprise attacks from above.

"Unlike so many other shoot 'em ups, the difficulty level has been set just right, allowing a little progress with each game."



After the destruction of the first mothership you beam down to a ragged planet surface. Here the aliens shift up a gear and start appearing in overwhelming droves. A little further on the scenery begins to close in, restricting your movement further still. With each level the aliens get faster, bigger and more numerous. Unlike so many other shoot 'em ups, the difficulty level has been set just right, allowing a little progress with each game.



"Clearly a lot of thought has gone into the attack waves, which although remaining identical from one game to another, always manage to keep you on your toes."



Sound and graphics match the standard set by the gameplay. The loading music is a cut above the usual looped sample, and the effects consist of various loud zaps, warps, ricochets and rumbles. All the graphics are perfectly smooth, and among the typical metallic aliens there are some excellent sprites with a satisfying habit of exploding into white hot fireballs.

To call it original would be stretching the truth to breaking point, but with Menace as the only other horizontally scrolling progressive zapper of any note, who's complaining? Clearly a lot of thought has gone into the attack waves, which although remaining identical from one game to another, always manage to keep you on your toes. Xenon was brilliant but too hard, and Menace was a little too easy at times. Denaris has all the best points of both and more. We shall have to hang on to see if Activision can top it with R-Type, but they must come up with something awesome to beat this! Grab a copy now and see what your Amiga can really do!

T.H.

Denaris

US Gold

Graphics: 9
Sound: 9
Playability 9
Value: 8
Price: £19.95



Teenage Queen

Infogrames

You may think Anco have the strip poker market sewn up with their never ending series, which is, we hear, exciting an international audience. But, it seems, Infogrames have other ideas.

Teenage Queen is played in exactly the same way as most existing strip poker games, even down to the layout of the option icons. The computer deals both you and your sexy opponent a hand of five cards. Good hands are frequent as the lowest card in this pack is a seven. You both begin with 100 credits. Once you get the girl's balance below zero she takes off an item of clothing in exchange for some cash. A very flirtatious and sexy teenager, at first you think she's just teasing but she strips off completely if you keep up a winning streak. And she goes a lot further than Maria Whitaker!

"A very flirtatious and sexy teenager, at first you think she's just teasing but she strips off completely if you keep up a winning streak."

Although the graphics are not digitised, they are at least as good as those often indistinct images of some existing strip poker games. Occasional sampled giggles, moans and snatches of speech (mostly in French) have been thrown in for added realism.

Your opponent starts as a fairly good player, but nearer the end of the game she gets a lot tougher to beat. And it may take you quite a while, and some percentage play to "beat the pants off her"!



Just like the rest, Teenage Queen is very addictive to begin with, and there are a lot more than the usual five or six pictures to get through. Once you have finished the game a lot of that pull is lost, but it looks as if future data disks are the cards. There is one big surprise, right at the end, that I won't reveal. I'll only say "Toutes ne sont pas qu'ils semblent" (I think that means 'Everything isn't what it seems' but my French is improving only slowly with the help of this little teaser).

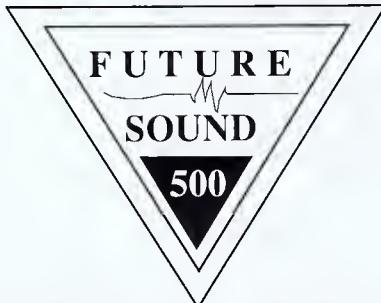
Teenage Queen is definitely one of the best games of its kind, but compared to Anco's versions it does look a little overpriced.

T.H.



Graphics:	8
Sound:	7
Playability:	7
Value:	7
Price:	£19.95

A New Future.



In STEREO for the Amiga 500 and 2000.

FutureSound has recorded all the frogs, explosions, choirs, guitars, guns, drums, cars and movie stars that bring your Amiga to life. Delivering the finest quality samples with an editing system that offered many sophisticated digital editing features, FutureSound quickly established itself as the premier audio digitizer for the Amiga. But our £175 price made it difficult for many but the most serious developers and power users to easily afford. So we've trimmed our costs, added new features, and introduced the new FutureSound 500. With a New Lower Price that anyone can afford.

£79.95 inc VAT.

Same quality, New features:

- | | |
|---|--|
| .Records two tracks simultaneously | .Same easy-to-use software editor, with new features |
| .Separate microphone input with built in amp | .Support for hard disks, RAM disks, Vdo devices |
| .Samples up to 28,000 samples per second, | .Works with 1.3 and fast file system |
| 20,000 samples per second per channel in stereo | .Listen to input through digitizer |
| Sliding input volume control | |
| . Ribbon cable attaches to parallel port | |

FutureSound 500™

Being or occurring in the time ahead. The sensation caused by vibrating wave motion.

For further information, please contact:
Applied Visions, (UK) Ltd.
Jersey Supreme Works, 538-546 Whippendale Road,
Watford, Hertfordshire, WD1 1QN.
Telephone: 0923 818078 Fax No: 0923 817417
Dealer & Distributor Enquires welcome.

Amiga Answers

More Amiga Answers from Yuri Large, the Amiga User Group's Technical Whizz-Kid.

Dear AUI

I have a big problem with my A500. Sometimes, when I boot some of my software, my Amiga checks the disk for a while as if reading something, and then the hard with the Workbench disk comes back on the screen. Then, I have to turn my Amiga off and wait a few minutes before trying again, either successfully or not, to re-boot. I am sure that my software is good - good boot block and DOS. I do not have a memory upgrade, or a clock. Is this a new virus?! Does it jam up the boot block or the kernel? Or perhaps my A500 has a hardware problem.

**ALAIN PIEDNOEL
BARNEVILLE-CARTERET,
FRANCE**

Dear Alain,

Usually the Amiga behaves in this fashion because the disk you are using has either an invalid or a corrupt boot block. The boot block of a disk, as you probably know, is on track 0. The data contained here must be in a certain format for the disk to be bootable. In some cases, a disk's boot block can be such that the Amiga will start to read it and then reject it. This sounds like what is happening to you.

However, you mention that your problem is intermittent. In this case, it is more likely that your hardware is at fault. You might invest in a disk head cleaner which should be available from your usual computer shop for around about £8. This should remove any dirt from your disk drive's head which may be causing it to read incorrectly. If this does not solve your problem, your Amiga may well need repairing.

I do not know of any viruses that cause the kind of problems that you have been experiencing.

Dear AUI,

In October last year I upgraded from a C64 to an Amiga 500. I am very satisfied with it, but I have a few questions.

1. I bought a Star LC-10 colour printer to go with the Amiga. Some of the programs I have do not have the Epson JX-80 specified in their Preferences. Can I put it onto the disk from the Preferences on the Workbench? If so, how?

2. I also have an Apple IIe with an Imagewriter II. On the Workbench Preferences this printer is available, but I can't hook it up to the Amiga as the serial port on the Amiga and the cable from the Imagewriter II both have pins. I know it is a serial printer because to hook it up to the Apple we have a Super Serial card. What do I need to hook it up, an interface, a cable, an adaptor, or do I just plug it into the parallel port? When I called Apple in Germany they wanted DM120 (roughly £35) to look at my Amiga to answer this question.

3. What external disk drive is in your opinion the best?

Best regards.

**FREDRIC NEWBERG,
DUSSeldorf, WEST GERMANY**

Dear Fredric,

1. When you select a printer from Preferences for your use, all that you are really doing is telling the Amiga which printer driver to use when printing. All the printer drivers that the Amiga can use when using a particular disk are stored in that disk's "printers" directory. This directory can be found in the "devs" directory of any bootable disk, i.e. it is two levels down in the directory tree. Therefore, all that you need do is copy the "EpsonJX-80" printer driver from your Workbench disk onto the disk that you wish to print from. In order to do this using a one drive system you must first set up a RAM disk from which to run the CLI commands. This procedure is quite complicated, but if you want to do it I would suggest that you first get a good grounding in the use of the CLI. An easier solution, and one that will cause less confusion, is to boot from your Workbench disk when you want to print, and then run the appropriate program from there. This will allow you to use the "EpsonJX-80" driver, which will be selected because you are using your Workbench disk system-configuration.

2. You should be able to connect your printer directly to the Amiga's serial port via an appropriate cable. To obtain this cable just contact a good computer dealer with the details of the Amiga's and the Imagewriter II's serial port pin-outs. They should then be able to make you a lead very

easily. In fact, you will probably find that all that is required is a standard lead for connecting an Amiga to a RS232 device.

3. Most of the drives available in the UK are made by British companies and I do not think that they are readily available in Germany. However, I can recommend the Commodore A1010 3.5 inch external drive, which I am certain will be available in Germany. I myself have used one for over two years and have had no difficulties.

Dear AUI,

I'd really like to get involved with modems, and would appreciate some help. I have an Amiga 500 with a ram pack, and two disk drives. Firstly, is the GEC Datachat modem "free" with a Micronet subscription worth the eighty quid? Is it any good, or would I be better getting a cheapish modem from elsewhere? I am interested in Micronet however, so would I be able to subscribe without getting their modem??

This is the biggie! I've got absolutely no knowledge of programming. I don't know a chip from a potato. Should I like modemming, the prospect of a bulletin board sounds wonderful. What exactly would I need to set up my own bulletin board, and would I need programming skills? What are hard disks for, and could you recommend any?

As you can see, I don't know a lot - and if a game doesn't auto-boot, I'm really up the creek!!! Any and all advice would be invaluable.

Thanks

MAT EDMUND, PETERBOROUGH

Dear Mat,

Most of the modems supplied free with subscriptions to commercial systems are, as you would imagine, cheap and cheerful. Usually they will only support the data transmission rate required to use the system you are subscribing to. Consequently you may find yourself to be restricted in the use you can make of the modem. In this case, you may find that a greater initial investment will be beneficial. Not only will it give you the ability to use a wider variety of bulletin board systems, it may also provide you with faster communications, thus saving you pounds on your phone bill. In most cases, you will find that the modem you buy will still allow you to connect to Micronet. However, if this is your main purpose in buying a modem, check first!

In order to set up your own BBS all you will need is a modem that will auto-answer, some software, a phone line and, of course, your Amiga. There are two packages available for the Amiga that will allow you to do this.

One is Public Domain and is called Tag-BBS. This is not easy to set up and the documentation is not terribly good. I would recommend that you use BBS-PC! from Micro Systems Software, the same people that produced Scribble! BBS-PC! is a very comprehensive package and it should set you on the road to becoming one of that rare breed; a sysop!

A hard disk is like a great big floppy disk. Hard disks vary in size from 10 megabytes upwards and they allow much faster access to the data that they contain than floppy disks. An Amiga Floppy disk can hold approximately 1 megabyte of data. So, you can imagine what an improvement a hard disk can be to a system, especially when one is using large amounts of data. For instance, you might be running a BBS!

Dear AUI,

I have been an Amiga owner now for about four months and have been extremely pleased with it. I had been reading your magazine for about 3 months before I actually bought my Amiga and have bought every copy of your magazine ever since.

I have one small problem which is annoying me. I would like to use a picture I have drawn, using DPaint, as a loading screen for some of my programs, but I have failed miserably. Can you please tell me how I can use a DPaint picture and a Sonix file together, independently from their main program. I have been trying to work this out for ages, I have consulted an Amiga DOS manual, the DPaint literature but to no avail. I'll be extremely grateful if you could help me out. I enjoy reading your magazine, which is easily the best around for the Amiga (even if it is £1.95). I think you should have more competitions in your magazine.

Yours faithfully,

MASUD KHAN, COVENTRY

Dear Masud,

The easiest way to display a DPaint picture and play a Sonix tune at the same time is to use "Lights, Cameras, Action!", which is a program produced by Aegis. This program allows you to create a slideshow of IFF pictures while playing a Sonix score. To link this with your programs you will need to use the player program provided with "Lights, Cameras, Action!".

Dear AUI,

I have recently purchased an Amiga 500 and an NEC Pinwriter P2200 printer and although I am delighted with them both, I have had a couple of problems when outputting my work to the printer.

I have been experimenting with the notepad on Workbench and although I

can display many different fonts on screen, when I print them out, they revert to the standard plain font. I appreciate that Notepad is a very basic program and that the P2200 is not listed as an alternative printer in Preferences (I use the Epson option), but can I expect to be able to use all the fonts available in a package such as WordPerfect which I intend to buy in the near future?

My second problem is that when I try to print out my creations on Deluxe Music, I can only achieve a copy in draft and not in letter quality, this also happens when using Deluxe Paint. I look forward to your comments.

Yours faithfully,

P. FRETWELL, SHEFFIELD

Dear Mr Fretwell,

When printing using any dot matrix printer, there are two ways that the computer can send data for printing. The first is to send numbers corresponding to ASCII codes, which the printer then prints as the letter represented by that code. For instance, using this method, if the number 84 was sent to the printer the letter T would be printed. The font which is used to print is determined by the printer. All dot-matrix printers have at least one font installed in a ROM chip, and some have more. Therefore, when printing using this text mode, you can only use the fonts that your printer already has.

The other method of sending data is to do it line by line and dot by dot. This as you can imagine is slower, but as you probably already know it does allow you to print pictures or graphics. Using this graphics mode the Amiga can print the Amiga fonts. Using Notepad you have the choice of which printing mode to use. It is selected from the "Print As" option on the Project menu of Notepad. There are two options: "graphic" prints using your printers graphic mode and allows you to produce the fancy Amiga fonts; and "Draft" uses your printers in built fonts which you can usually select via the printer.

Now onto your printer, the NEC P2200. As you mention, using Workbench 1.2, there is no printer driver for your printer or for that matter any other 24-pin printer. This is because 1.2 does not support 24-pin printers. The closest there is, is the "Epson" driver which you are already using. This when used to print graphic output will probably look like "draft" quality. In reality what it is happening, is that your printer is only being driven in 9-pin mode, therefore not taking advantage of your printers full resolution (i.e. 24-pins) and as such the quality will probably not be to your liking.

However, do not panic, as you will

have heard Workbench 1.3 does support 240pin printers. There is even a driver for the NEC Pinwriter Series, of which your printer is a member.

With reference to your printer and Word Perfect, you will find that WP only allows you to print using your printers in built fonts. This is because it uses the text mode to print, and therefore does not support the Amiga's fancy fonts. However, WP will allow you to use all of your printer's features, and you will probably find that the results achieved that way are of far better quality than anything produced using graphics mode. If you do want to use the fancy fonts try one of the WYSIWYG word processors available for the Amiga, such as ProWrite, Kindwords or VizaWrite.

Dear AUI,

I am having problems interfacing with my wife. But more importantly I am having problems interfacing my STAR SR 10 PRINTER (centronics parallel) to my Amiga 1000. The problem appears to be with the way I am wiring the plugs.

I would also be grateful if you could also recommend a "printer driver" for the same.

Could you clear the point up with respect to pin 23 on the Amiga 1000 and pin 1 on the printer. The way I read it is I could do damage if I use an IBM printer lead, which would connect these two. This would feed +5V from pin 23 (Amiga) to ground at the printers pin 18.

I look forward to your reply.

Yours faithfully,

R. ROSCOE, RUNCORN

Dear Mr. Roscoe,

Rather than take any risks, I would suggest that you contact the UKAUG on 0533-550993. They will be able to supply you with the lead that you require. You should not use an ordinary IBM printer lead as this will indeed cause a small bang. An IBM printer lead will be the wrong gender in any case. Pin 23 on the Amiga 1000 is a +5V line. When the Amiga 1000 series was designed there was talk of using this +5V to power external peripherals, but very few people ever did use it. In fact, this idea was dropped in the design of the Amiga 500 and 2000.

Unfortunately, there is no specific driver for your printer either supplied by Commodore or, to my knowledge, in the public domain. However, the trusty "Epson" driver should supply the appropriate codes for your printer.

Dear AUI,

I consider myself a reasonable Basic programmer, with a smattering of knowledge about files and operating systems from working with

Amiga Answers

mainframes and minis (in fact the Amiga is far more powerful than the first mainframe I worked with - which shows my age!) but to get the most out of the Amiga operating system and excellent Basic supplied with it I soon needed support and advice - but where to turn to?

When working with the C64 I had had plenty of magazines giving help and advice on programming with listings of games, utilities, useful routines and hints and tips. In fact plenty to keep me busy, so naturally the Amiga magazines would be of similar help - how wrong could I be?

So much for the criticisms - now for the constructive bits - I have at last obtained some excellent books on Amiga Basic, they are at last appearing on the bookshop shelves. For

anyone familiar with Basic the more powerful features of Amiga Basic are explored in the Compute! book "Advanced Amiga Basic" with plenty of ideas to provide starting points for further programming. Although Amiga Basic may not be as powerful a language as C and ML a lot can be done with it and an excellent feature is the ability to extend the language even further through its ability to call the Amiga Library Routines. This facility is explored in the Abacus book "Tricks and Tips" which provides many powerful routines which may be incorporated into Basic programs opening up a whole new field of Basic programming and obviating a lot of its drawbacks. A third, more specialised book is Compute's "Inside Amiga Graphics" which covers C, ML and

Basic.
The Amiga is the best computer in its class - it deserves the best support.
I live in hope....

ROD PILLING

Dear Rod,

Thank you for your comments. I would like to agree with your book recommendations and also add Abacus's "Amiga Basic Inside and Out" to your list. Also, I would suggest that you take a look at Andy Jenkinson's Amiga Basic column in the UKAUG's bimonthly newsletter. In this column, Amiga Basic is covered in a mature manner with some good discussion of the finer points of this fine language.

Don't forget that just because it's free doesn't mean that it is rubbish. In this case, that couldn't be much further from the truth.

MIDI

continued from page 16

The fields shown as remarks are given to help appreciate the involvement of the Exec's 'IOStdReq' structure but most of the fields will not be used directly and can be effectively ignored.

To create a request block we use the CreateExtIO() function. It takes two parameters - the address of the previously opened message port and the size of the request block.

```
IOStdReq *req = (IOStdReq *)malloc(sizeof(IOStdReq));
req->Port = &msgPort;
req->ReqType = IOREQ_BLOCK;
req->ReqSize = sizeof(IOStdReq);
req->ReqFlags = 0;
req->ReqData = (char *)(&serPortParams);
```

P.O.A.

We include the usual checks for errors and, if the function provides a valid pointer to a IOExtSer structure we are in a position to actually open the device. During the 'open' the serial device pays attention to only the shared/exclusive access flag and the 'seven wire flag' (enables the RS232 DTR/DSR/RTS/CTS handshaking protocol). Any other flags are ignored but it is recommended that other bits should be set to zero. By setting the serial flags field of this block to zero we tell the device we're willing to accept the default serial device parameters so, if we have set the appropriate MIDI parameters from Preferences, we shall find that the serial device is automatically configured for MIDI as we open it using

```
OpenDevice() like this...
```

```
if (SerialPort = OpenDevice("COM1", 0, 0, &global_10_req_p, 0);
```

```
&global_10_req_p->ReqFlags = TRUE);
```

When the Amiga is multi-tasking, or when very high MIDI throughputs are envisaged, it is possible for MIDI data to be lost under this arrangement. The reception of system exclusive data is a typical example of a high throughput area. It is not uncommon for these data blocks to contain 5-10K bytes of data and this data will be sent without the 'quiet gaps' that keyboard generated MIDI data usually has.

There are some extra steps that can be taken to minimize this risk of data

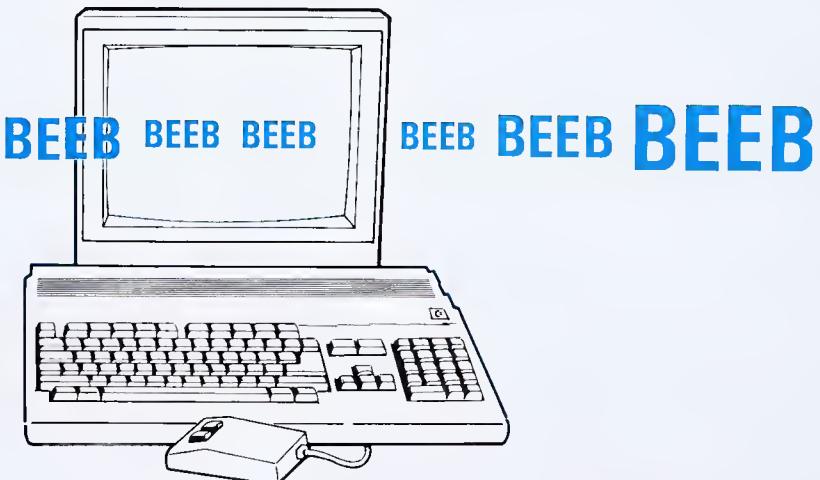
loss under these circumstances. You can disable parity checking, eliminate break signal checking and by-pass the XON/XOFF handling thereby generally increasing the performance of the serial device. Surprisingly enough it is very easy to do - you just set the SERF_RAD_BOOGIE flag in the 'IO_SerFlags' field and issue a 'Set Parameters' command to the serial device, like this...



```
if (global_10_req_p->ReqFlags |= SERF_NOD_BOOGIE;
    global_10_req_p->IOReq->io_Command = SDCMD_SETPARAMS;
    global_10_req_p->ReqData = (char *)(&serPortParams);
    global_10_req_p->ReqSize = sizeof(serPortParams));
    SetParam(global_10_req_p);
```

/* * serial port is alive and kicking ! */

Now the Amiga makes a new noise.



You've got an Amiga but want to expand your programming options and your software base.

Or maybe you've got a BBC Model B computer and want to upgrade to an Amiga without making your existing software redundant.

In either case you need **THE EMULATOR**.

THE EMULATOR allows you to run programs originally written for the BBC Micro on a Commodore Amiga. In some cases they'll run seven times faster than on the machine for which they were intended.

Of course, that also means your own BBC Basic programs will also whizz along at lightning speed.

So for just £49.99 (or £39.99 to education establishments) you could be adding a new dimension to your computing power.

THE EMULATOR includes hotline technical support and is available from:

*James Associates
6 Hazlitt Mews
London W14 0JZ
Tel: 01-603 3313*

Order by Access or send in the coupon.

Please send me copies of **THE EMULATOR** at £49.99 (inc VAT) each plus £2.00 P&P

Name:
Address:

Postcode:

Tel:



Commodore

From the creators of Captain Blood comes Purple Saturn Day, a weird kind of sci-fi Summer Games.

Every Saturn year, the Purple Saturn Day Games are held. (You mean you didn't know?) Together with you, seven other species are paired to make four teams. (Now, you remember!) Three rounds of four events are played as a knockout competition, the winner of which gets to be on the receiving end of a sloppy kiss from the rather tasty Saturn Day Queen (and that's not all, going by the accompanying sampled moans of pleasure!). The events can be practiced or played for real in any order.

Saturn's ring of asteroids is the venue for our first game. Ring pursuit is a race between two competitors around Saturn's encircling asteroid belt. The course is marked by wrecks of spaceships coloured alternately red and yellow to form a slalom. Colliding with an asteroid brings your ship to a bone-jarring halt, but maintaining a high speed is essential if you

"Turning at 90 and 180 degree angles can be confusing at first, but thanks to the long-range scanner you get the hang of it soon."

speedy 3D graphics take care of the 3D.

Tronic slider is the next one-on-one challenge. It is played on a flat square surface suspended in the blackness above Saturn, and starts with an energy ball being shot into the arena. Each player pilots his own slider armed with a gun for disrupting the ball. Shoot it and it shatters into small fragments to be scooped up by the sliders. Turning at 90 and 180 degree angles can be confusing at first, but thanks to the long-range scanner you get the

PURPLE SATURN DAY

Infogrames



are to beat your computer-controlled opponent. Points are scored by keeping ahead of your opponent and by passing the markers on the correct sides. However, taking a wrong route through the markers whilst leading adds to your opponent's score. Some very smooth and



hang of it soon enough. Again the 3D is very slick and there's a satisfyingly squidgy sound effect as you collect the fragments.

Brain bowler takes you away from the high speed thrills of the first couple of games. The idea is to re-activate your side of a brain

before your opponent does the same to his. A number of electrical charges buzz their way around a circuit, repelled and obstructed by switches, chips and the like. You control an erratic electro-ball, used to open and close switches and generally give the charges a helping hand through the maze of obstructions. This is a strange addition to what is otherwise a fast-paced arcade game. For me it is definitely the game's weak link.

The time jump uses a gravity catapult to send you on a trip through space, accelerating through the speed of light and into another dimension. To pull off this feat you need to

catch a sufficient number of energy sparks that are shot before you. The more you catch the further you go into that fourth dimension.

Throughout the game the dreamy graphics are liberally sprinkled with details that give an extremely professional look to the whole thing. Sound is used well; the intro music is nothing special but the variety of gurgling and zapping effects can be very helpful.

Ring pursuit, tronic slider and time jump are all extremely attractively presented and provide some simple but challenging fun. Brain bowler on the other hand is the black sheep of the quartet, and while I can see it appealing to



some, it tends to break up the flow of the game. There are a lot of good ideas in Purple Saturn Day and the scenario makes a welcome change from saving the world, or rescuing your girl friend. What is there is very good, but with a little more development, perhaps a couple of additional games (in PSD.II?) Purple Saturn Day could have really made it big. Nevertheless, recommended to everyone who wants a real exciting 'Tronish' feeling game.

T.H.

Graphics: 9
Sound: 8
Playability: 7
Value: 7
Price: £24.95

SWORD OF SODAN

*Grasp the sword of Sodan
and feel the true power
of arcade action!*

Creaking, groaning, shrieking,
teeth clenching arcade realism.

Deep dark forests.

Misty, eerie graveyards.
Treacherous, guard-filled streets.

Dare to enter the evil castle,

Craggamoore.

Wield your sword through
its winding corridors
and rank rotting dungeons.

Your story will be

the greatest ever told

— Your reward will be
the greatest ever known!

FEATURES:

- Battle with massive animated
characters that stand 2/3rds
the size of the screen.

- Fight as Hero or Heroine
through 11 incredibly
challenging
levels!

- Study your past
performance in
Replay Mode!
(extra memory
required)

Packed into 3 disks
with more than
4 MEGABYTES
of detailed
graphics and
digitized
sounds!



Available for Amiga™,
Coming soon for IBM® and
compatibles. Apple II GS.



AMIGA screens shown.

Sword of Sodan is a trademark of Discovery Software International Inc. Amiga is a trademark of Commodore Amiga, Inc. IBM is a registered trademark of International Business Machines, Inc.

MAILSHOT UNIT 10, 10 WELLINGTON ROAD, SANDHURST, SURREY GU4 9AW
TEL: 0252 877431 or 879718
TRADE ENQUIRIES WELCOM

Dorian 1988 ©

TO THE RESCUE

Part II

The previous installment of this series gave general information about the way data is stored on the disks. This time Betty Clay presents the specific layout of the directory blocks, and the use of a disk editor.

The Amiga has several kinds of blocks (sectors), each with a slightly different format. Each block on a floppy contains 512 bytes, divided into "long words" which contain four bytes each. If you examine a diskette carefully, you will probably find several kinds of blocks that are undocumented, but five types are described in the ROM Kernel Manual: Root Block, User Directory Block, File Header Block, File List Block, and Data Block. One important type of undefined block is the Boot Block.

All of these blocks have a common structure in the first six longwords (fields), though some are null in some blocks, and those that are used might have a different meaning in a different kind of block. While there is much similarity, it will easier to follow if each type is presented separately.

Directory Blocks

A directory block could be divided into three major parts: the six words of header information in fields 0-5, the 72-word hash table in fields 6-77, and the information about the directory itself in fields 78-127. These are placed in the block in that order.

There are two kinds of directory blocks: the root block, and the user directory blocks. The root block is always sector 880 on these floppies; on a hard disk it would be the sector in the middle of the disk or partition. There are very few differences in the layout of the root directory and user directory blocks, so I shall treat them together, making note of the differences as we come to them. Here are the first six fields from a typical root directory:

- 00000002 — the type of block (short — only one block in the file)
- 00000000 — header key (zero for the root; number of this sector in user directories)
- 00000000 — highest sequential number — always zero, since directories can be only a single block long
- 00000048 — hash table size (4 * 16 + 8 - 72 entries)
- 00000000 — not used for either directory block
- A45D4A26 — checksum, used to make sure data isn't corrupted

Following these six words, there will be the hash table, in which there can be no more than 71 entries, as noted above. Hash tables are an interesting topic in themselves. The use of hash tables makes the Amiga drive incredibly fast at loading a file when the name and path are known — but dreadfully slow at displaying director-ies.

Hashing means using a mathematical algorithm to change words to numbers so that every possible word will have a numerical value within a certain range. In the case of the Amiga, that range must currently be between six and seventy-two, inclusive, because that is the size of the hash table into which the words will be stored. Each filename you select is put through this hashing process, assigned a number between six and seventy-two, and then the number of the file's header block is stored in the directory in the slot whose number corresponds to the hash value. Suppose, for instance, that you called a file "File4" and that its hash value was 13. Then suppose further that File4 is to be started at

sector 887. For this file, the 13th longword in the directory block would contain the number 887.

There is a need for caution in using hash values. Sometimes different file names will have the same hash value. It is this property that permits us to have large numbers of files on a disk. If AmigaDOS starts to write a file key into a slot and finds the slot already filled, it moves to the header of the file already occupying the slot, and adds its new block number to a particular field in that file's header block. This is called "adding to the hash chain." Thus, you can have many files whose names give the same hash value. Any editor should show you the name of the file on which you are working; check carefully before making any changes.

After the hash table, there are these fields:

- Word #78-123 — bit map flag — to indicate if the bitmap is valid.
- Words #79-95 — pointers to the blocks that hold bitmaps. For floppy disks, only one bitmap block is used.
- Words #96-98 — date and time at which the disk was last altered
- Words #99-120 — Name of the disk
- Word #121 — the date the disk was created
- Word #122-123 — the time of day the disk was created
- Word #124 — next entry on the hash chain. (Always zero for the root, but holds the key to the next file with the same hash value for user directories.)
- Word #125 — back pointer to the parent directory. Zero for the root.
- Extension block number
- Word #126 — not used for directories, so zero.
- Secondary type. 1 for the root, 2 for a user directory.

Most disk editors will let you type in ASCII when correcting things like disk names. Some will permit you to

TO THE RESCUE

Part II

choose between decimal and hexadecimal numbers. I am using decimal numbers in this article except when copying hexadecimal items from the diskette.

The date is an interesting item. The date is held as the number of days since January 1, 1978. Probably that was a significant date in the life of the BCPL or TRIPPOS from which we received AmigaDOS. If you want to change the date manually, and if your editor does not permit editing in ASCII, you will need to know how many days have passed since that date!

Editing the Directory Blocks

Have you ever had a known file that was preventing your disk from working? If you could be rid of that file, the rest of the disk would be recovered. There are several ways to find the file. If it can be listed in a directory, you can use the LIST keyword to locate the file on the disk. I'm using a disk with a directory called "Hermit". When I type LIST DF0:HERMIT KEYS NODATES, this is what I see:

3.vdk: > list df0:hermit keys
Directory "df0:hermit" on Wednesday
23-Nov-88

CYCLER	[1321]	8776	---rwd
HERMIT.info	[1323]	8664	---rwd
.info	[1325]	32	---rwd
HERMIT.doc	[1327]	5443	---rwd
HERMIT	[1329]	15712	---rwd
CYCLER.doc	[1331]	2327	---rwd
LAND.pic	[1333]	26942	---rwd
LAND.pic.info	[1335]	454	---rwd
8 files — 152 blocks used			

The word "Keys" requests the LIST command to show you the number of the first block in each file on the disk. The numbers inside the brackets are

the sectors in which the files begin. With such a list, each file is located, and editing is easy. If a file, say HERMIT.info, were giving me trouble, I could list the root directory to find where the "hermit" directory is located. By finding the hash value of "Hermit.info", the slot in which the 1323 is stored would be pinpointed. Just replace the numbers there with zeros, and the offending file will be removed. A file in a user-directory is handled in exactly the same way, but you must locate the sector containing that directory first. You can find it in the same ways — with a LIST or by hashing it.

For a terribly important file, you might even take the time to look through the blocks to find the header of a missing file. Just have the editor move from block to block until you find it. Then, note the block number, and find the hash value of your file's name. Go back to the root block and type the block number into the slot corresponding to the hash value, and your file is rescued.

Next time, we will discuss the other types of blocks, and more about using disk editors.

B.C.

AMIGA 500- THE GREAT COVER UP!



ONLY
£7.99
incl. P&P

Your swish new Amiga 500 should not be subjected to the ordeal of C — coke, coffee, crumbs and crisps — at least not while you are not using it! So the best thing to do is cover it up — keep it protected by an exclusively designed Amiga 500 cover. Each CCI Amiga 500 cover is tailor-made, to fit the machine. It has the official Amiga logo printed in full colour on the top and is specially created to give complete protection against dust and other damaging substances. It is expertly sewn throughout, fully bound and manufactured from very high quality grey supported nylon material.

It has a special mouse pocket and the whole cover fits snugly over the complete Amiga 500 computer, giving it extra protection to help keep it in good working condition.

The Amiga 500 cover — only £7.99 inc. p&p.

Commodore Amiga User International
40 Bowling Green Lane, London EC1R ONE
I enclose cheque/P.O. No.
for the amount shown above payable to 'Croftward Ltd' or please debit
my ACCESS account No.

Signature

Expiry date

Name

Address

Telephone Number

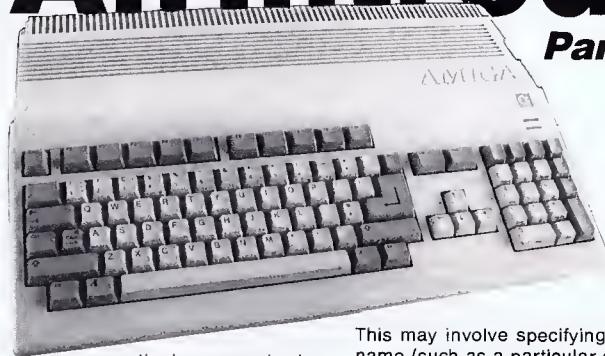
Please allow 28 days for delivery.

**SUSAN MAXWELL continues our series
for new (and old!) Amiga owners.**

THE AMIGA

An Introduction

Part II



We are continuing our series by looking at AmigaDOS, the Amiga's operating system. We mentioned last month that, by opening a CLI window, it is possible for the Amiga user to obtain a direct "command driver interface" link to the operating system. We also pointed out that this is not without some disadvantages for the beginner, since not only must the commands themselves be learned but also the correct syntax for each command (i.e. the proper way in which the command, and any necessary parameters, need to be typed in order for it to be understood by AmigaDOS). Most of the commands make little sense unless you understand, in general terms, how AmigaDOS files are organized and what conventions are used for naming and locating them. This month we are going to start to look at some of the things that you should know about in order to use the CLI/AmigaDOS commands effectively.

A file is the smallest named object used by AmigaDOS and is primarily identified by its 'filename', which can be up to 30 characters long. Filenames may be enclosed within double quotes although you do not usually need to do this unless you choose to include those 'non-alphanumeric' printable characters (such as space, +, =) that are liable to confuse AmigaDOS. Only two printable characters are expressly forbidden in filenames.... the slash (/) and the colon (:).

To uniquely identify a file AmigaDOS will usually expect you to specify not only its name but its location as well.

This may involve specifying a device name (such as a particular disk drive or a ram disk) and/or a 'search pathway'. Let's deal with the device name first; AmigaDOS recognizes various physical devices including up to four 3½" disk drives (identified as DFO:, DF1:, DF2: and DF3:), and a hard disk (identified as DHO:). It recognizes serial and parallel ports (named SER: and PAR:) and a 'ram disk' device. A separate printer device (called PRT:) is also supported and the characteristics of this device will be those selected by the 'Preferences' program mentioned last month. PRT: is used to send data to a printer and using this (rather than SER: or PAR:) enables program output to be automatically switched between the serial port and the parallel port according to the user's choice of printer options under preferences. Other devices, such as those called RAW:, CON:, NIL:, are also supported but are not particularly relevant to the present discussion.

Occasionally it is more convenient to be able to specify a particular disk rather than just a drive name and AmigaDOS allows you to do this if you so wish. When a disk is initialized it is given a unique name, called its 'volume name', and you can gain access to any file on the disk by using this 'volume name' instead of the device name. If the disk specified is not present in one of the drives AmigaDOS will prompt you to insert it before continuing.

AmigaDOS also supports a variety of 'logical' devices and uses these devices to find various files that your program might occasionally need.

Here's some common ones you will come across in the literature....

SYS: The System disk root directory
C: The Commands directory
L: The Library directory
S: The Sequence library

Such logical device names enable programs to refer to important system directories using standardized names — thus avoiding difficulties relating to the physical locations of particular directories. The appropriate assignments are usually made by the system as part of the 'start-up sequence' code. We shall say more about device names once we have explained AmigaDOS's use of 'directories' and search pathways.

AmigaDOS uses a tree based arrangement (a tree structure!) to group together logically related files. Users produce 'logical compartments' within a disk by creating a corresponding directory structure. Once a suitable structure has been created a user can choose to store any file in any particular directory, and thus can control the way in which AmigaDOS logically separates files present on a disk.

Files with identical names can co-exist in different directories quite happily, but the price paid for such flexibility is that one usually needs to tell AmigaDOS which directory a file is in before AmigaDOS can find it. Since directories can be 'nested', i.e. directories can be created within other directories, AmigaDOS will often need to know the filename, the directory holding the file, and the directory holding that directory and so on. In other words we invariably need to inform AmigaDOS of the path needed to be taken through the directory structure in order that it can find the required file — this is what is meant by saying that we need to specify the 'search pathway'. When you specify a file in this way the slash (/) character must be used to separate both the individual directory names and the filename. Thus DFO: Examples/test refers to a file 'test' which is present in the 'Examples' directory of the disk present in drive DFO:.

Before we look at some specific examples we should mention that AmigaDOS will recognize commands and parameters typed in either upper or lower case. Both file and directory names are actually stored (and displayed) using the upper/lower case arrangement used when the file or directory was created, but when searching AmigaDOS disregards such information!

One of the best ways to learn about the AmigaDOS facilities available at a CLI window is to sit down with your Amiga and 'experiment'. So... switch your machine on, and 'boot up' using your WorkBench disk (as a safety precaution please make sure that it is write protected). Double click on the icon labelled CLI and a CLI window will open. Move and re-size it (using the drag bar and sizing gadget) until it occupies the whole width of the display and about half of the screen's depth.

The first thing to notice is that the window contains a 'prompt',
1> Unlike some other operating systems this AmigaDOS prompt is not related to a disk drive number but is the number that AmigaDOS has assigned to your CLI window, i.e. it is an AmigaDOS 'task number'.

To make AmigaDOS do something we must type a command. AmigaDOS will act upon the command as soon as the return key is pressed. Firstly type ABC and watch the disk drive light as soon as you press the Return Key. Your display should end up looking like this:

```
1> ABC (return)
Unknown command ABC
1>
```

Two points of interest... You will have noticed that the drive light came on. The reason for this is that all AmigaDOS commands are 'extrinsic', i.e. they are not part of the resident 'Operating System core' held in memory. Before a command can be performed it must be loaded from disk but since, in this case, AmigaDOS was unable to find a command called ABC it replied with Unknown Command ABC. There are three reasons why you might get these types of messages when you type a command. You might type a command that does not exist might mis-spell a command that does exist, or (for reasons that we shall discuss later) AmigaDOS might actually be looking in the wrong place for the command.

Now take out your WorkBench disk and type exactly the same command (ABC) again. This time a 'requester' will appear, asking you to insert your WorkBench disk. This has occurred because, as part of the startup se-

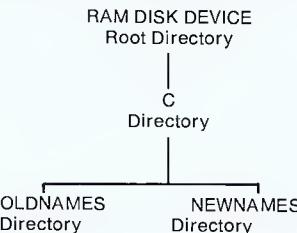
quence code, AmigaDOS has made certain logical device assignments which it 'remembers'. One such assignment links AmigaDOS's command directory to the 'c directory' of your WorkBench disk. In general, if the 'boot-up' disk that provided those original assignments is no longer available (because it has been removed or replaced), then AmigaDOS will ask you to re-insert it. In our case the assignments were to the WorkBench disk and once this is re-inserted AmigaDOS will continue but, since it still will not be able to find a command called ABC, it will give you the same 'Unknown Command ABC' message as before.

We have already mentioned AmigaDOS's directories so let us now look at some directory related commands: All AmigaDOS formatted disks contain a single basic directory, called the 'root' directory, placed on the disk as part of the formatting and initialisation procedure which occurs when you format a disk. You can in fact format disks directly from the CLI window and the AmigaDOS command used to achieve this is FORMAT followed by the drive name and the volume name of the disk you wish to format. This is the form which the command should take:

```
FORMAT DRIVE <drivename> NAME
<volume name>
e.g. FORMAT DRIVE DF0: NAME
      MyNewDisk
```

Once the disk has been formatted it is initialized and given the volume name that you have provided.

The ram disk device, just like a formatted physical disk, also contains a single root directory when it is created. As with other disks, if we wish to extend this arrangement we must explicitly ask AmigaDOS to create further directories for us — and this is just what we are now going to do. We are going to set up a 'ram disk' directory structure and duplicate the commands present on the WorkBench disk, then tell AmigaDOS to get its commands from our ram disk rather than from the WorkBench disk. First of all let's look at a 'picture' of the directory structure we are going to create:



We start by using an AmigaDOS command called MAKEDIR, which enables us to create a directory with a specified name. Initially we want to create a ram based command directory, which for consistency we shall call 'C'. Since the 'device' name is RAM:, and the chosen directory name is 'C' this is what you should type....

```
MAKEDIRE RAM:C <RETURN>
```

AmigaDOS will create the directory for you and then return with the 1> prompt. You can check that you now have a 'C' directory in your ram disk by using the command DIR to examine the ram disk contents. If you type DIR RAM: your display should end up like this....

```
1> DIR RAM: <return>
      C dir
```

AmigaDOS replies with 'C (dir)' confirming that the directory has been created. With a C directory now available in our ram disk we can use the MAKEDIR command again to create two further directories, which we shall call OLDNAMES and NEWNAMES, within this. We specify the path through the C directory and then let AmigaDOS create the new directories at the end of this path like this....

```
1> MAKEDIR RAM:C/OLDNAMES
      <return>
1> MAKEDIR RAM:C/NEWNAMES
      <return>
```

Having done this we have produced the directory structure that we wished to create. If however you type DIR RAM: you will get a surprise because AmigaDOS, although telling you that a C directory is present, will not show the two most recent directories that were created. These are 'nested' within the C directory and to find them we must actually 'look inside' the C directory. We achieve this by including the path to the C directory using DIR RAM:C and if all is well when you do this your display should end S.M. ke this....

```
1> DIR RAM:C (return)
      NEWNAMES (dir)
      OLDNAMES (dir)
```

confirming that the directories have indeed been created.

Now that we have a ram disk with our chosen directory structure available we can copy the contents of the WorkBench commands directory (i.e. the WorkBench 'c' directory) into our ram disk. The command we use to do this is COPY and, since it is a particularly useful command, we shall explain it in detail when we complete our look at AmigaDOS in our next article.

S.M.

IS REAL EXCITEMENT



PASSING YOU BY?

21st CENTURY WARRIOR APACHE **GUNSHIP**

THE AWARD WINNING ATTACK HELICOPTER SIMULATION

Experience the challenge and danger of attack helicopter flying. Gunship is an award-winning simulation of the Apache, the world's most sophisticated warrior helicopter. Incredibly detailed and featuring revolutionary 3-D graphics, it has flown straight to the top of the UK's best-selling charts.

As pilot you must fight your way through the war zones of the world. You'll use the same amazing array of advanced weapon systems as real Apache pilots – laser guided missiles, radar and infra red warnings, night

viewers, cannons, rockets and jammers. The dangerous combat missions will take you from the training fields of the USA to the battlefields of South East Asia, Central America, the Middle East and Europe.

If you've got the skills to survive you'll be rewarded with medals and rank promotions.

Gunship. The simulation which blows all other helicopter simulations out of the sky.

Available for C64/128 Cassette £14.95; Disk £19.95, Spectrum £9.95, Spectrum +3 £14.95, Amstrad Cassette £14.95, Disk £19.95. Atari 5T £24.95, IBM PC £34.95.

MICRO PROSE
SIMULATION • SOFTWARE

MicroProse, 2 Market Place, Tetbury, Glos. GL8 8DA. Telephone: 0666 54326

Mickey Mouse

Gremlin Graphics

I never really saw Mickey Mouse in the same league as super heroes such as Superman or Spiderman, saving the world from evil rulers, but I suppose everyone is allowed their bit of heroism once in a while of the kind Mickey performs in this his first licensed game.

Those wicked witches are up to their old tricks again and have stolen Merlin's magic wand and given it to the not-so-nice Ogre King. With these magical powers they can together take over Disneyland (what a horrible thought!). To cut a short story even shorter, the Ogre King then broke the wand into four parts and gave each witch a piece to guard. The witches have all split up and gone to the four tallest towers of Disney Castle where you must defeat each one to progress to the next level.

To reach the top of a level, Mickey must seal up all the doors in the tower, behind each door lies a sub-game that he has to complete successfully to board up the doors. There are four sub-games in all, the Puddle Maze, the Bubble Machine, the Pump Room (oover!) and the Dripping Taps. Apart from being possibly too easy to complete, these games give the game variety and add to the enjoyable flow of play.

The journey to the top is far from easy, riddled with such meanies as ghosts, ogres and skeletons. Surely even Mickey Mouse cannot be expected to defeat all these on his own? Fear not, he has a couple of weapons to help him, a water pistol and a hefty rubber mallet (makes a change from the usual machine gun massacre!). Some monsters have to be destroyed using the mallet and others with the pistol, you have to be careful not to use up any water on near misses because it soon runs out. However if you shot is on target the monster will dissolve and leave behind a pot of water to boost up your supplies.

Some monsters are tougher than others and need to be mashed with the mallet more than once because sometimes they divide into two. If you are unsuccessful in destroying the monsters, part of your energy will be lost and eventually you will be no more.

Special bonuses can be picked up once a monster has been destroyed but leave it too late and they disappear leaving you with nothing. Bonuses include keys which need to be collected in order to open the doors (no

more than two keys can be carried at one time); glue, which will stick all the meanies to the spot for a short while; a bird's head, that allows Mickey to walk off a balcony without falling to the ground and plenty more useful items can be found.



The towers have been drawn in a very imaginative and original way to give the game a very interesting atmospheric feel. The use of colour and excellent sprites is also top quality, especially Mickey who has been created very accurately and has a good solid look about him.

Mickey Mouse is definitely aimed at the younger players. It seems as though Gremlin have gone for the non-violent and simple type to suit young gamers, but that is not to say that the game is easy to complete, or lacks entertainment.

The absence of sound effects is a shame, but the in-game music suits the game well and is good to listen to. There are plenty of amusing parts in the game, including the little bow Mickey does at the start and the way some of the monsters split up into two when they are splatted with the mallet.

If you are not too keen on M.M. and like to use your brain a bit this may not be quite the game you are looking for. If, however, you are an avid Mickey Mouse fan — and he's certainly come back to popularity with all those T (and night) shirts — and like basic games without much need for thought, you should definitely consider popping off to your local dealer and getting a copy. Recommended.

Price: £19.99

D.H.

£5 OFF ARKANOID



The arcade blockbuster at last on the Amiga. The most sensational conversion from the worldwide smash-hit coin-op game for the Amiga — Arkanoid.

To Commodore Amiga User International,
40 Bowling Green Lane
London
EC1R ONE

I would like to purchase Arkanoid at the special price of £19.95 + £1 p+p (£20.95)

Please make cheques payable to
CROFTWARD LIMITED or debit my ACCESS
Account.

Signature

Expiry Date

Name

Address

Through Amiga User International Magazine you can play the enhanced European version of Discovery Software's terrific new game about which our review says

"Apart from the Discovery logo and option to start on any of the first 20 levels, it may as well be straight out of the coin-op!"

As a special introductory offer from Amiga User International Magazine you can get Arkanoid for £19.95 – £5 off the recommended retail price – an amazing bargain! As our review says (again!) "If you want a game that will become an Amiga classic, go and buy this, you won't be disappointed."

Please allow 28 days for delivery.

4TH & INCHES

US Gold

Graphics:	5
Sound:	5
Playability:	7
Value:	6
Price:	£19.99

It was around a year ago that US Gold was released the original 64 version of 4th & Inches. We hailed it then as great and it is still one of the best American football simulations on the 64. Accolade have converted it to the Amiga almost bit-for-bit.

Select a one or two player game, survey your team line-up and you can get down onto the field for the start of the game. Plays are selected with the joystick from sets of short menus. With your strategy all worked out the players take up their positions. From the snap you get control of the quarterback. Depending on the play you selected beforehand, you will have either to hang around for a while giving your receiver time to get into space before passing the ball, or else find a gap in your opponents' defence and make a run for it. Usually your receiver is off the screen when it comes to making the pass, so you need to estimate the time it takes for him to have found space to make the catch. After a while you learn to time passes correctly but it is far from the ideal system. Some kind of long range scanner could have easily been added and would have made for a more realistic game.



When it comes to defence there is little you can do to stop the progress of the opposing team. You can select your tactics from a wide range of set-ups, but in practice you have to rely on the rest of your team and mistakes from your opponents. Very little has gone into the defending team's artificial intelligence.

Instead of scrolling the background with the ball, the programmers have chosen to use a 'zoom' feature that re-centres the action as it leaves the screen. It works well enough but breaks down the flow of the game.

All the graphics are almost pixel-perfect copies of the 64's. Compared to those of Cinemaware's TV Sports Football the sprites look pretty feeble. Although the tunes are nothing to shout about there are a couple of good digitised effects.

With all these faults, 4th & Inches remains a highly enjoyable game. American football enthusiasts will find plenty enough in it for some involved sessions, but it won't be long before you beat the computer opponent so a friend to play against will come in handy.

T.H.

4TH & INCHES



2ND AMIGA DISK DRIVE



£75
inc VAT & P&P

**NEC mechanism
880K capacity
disable switch**

By selling direct we can provide the best price and maintain the highest quality. Rest assured that if, for any reason, you do not wish to keep the item, then return it to us within 14 days of purchase and we will refund your money in full. Should any item purchased from us fail during the first 12 months then we will repair it free of charge.

2ND PRINTER INTERFACE



Use your Amiga's serial port to drive a second Centronics compatible printer. A 3 metre cable is included - no extras required.

MIRACLE SYSTEMS
NBC, Dean Road, Yate, Bristol BS17 5NH
Telephone orders welcome on (0454) 317772

**For anyone considering programming,
a knowledge of Intuition can be vital.
Mike Nelson begins an important new
series that helps you harness its power.**

INTUITION

The Amiga User Interface

What is Intuition? Why do I need to know about it? What can it do for me? Is it easy to use? Do I need an advanced degree in computing to harness its power? Over the next few months I hope to address these questions in a series of articles aimed primarily at those programmers who are starting off with the C language but the information will also be helpful to anyone using the Amiga system in other languages such as Pascal, Modula 2 or Assembler. The aim is not merely to summarise the Intuition Reference Manual (IRM) — although this is a vital acquisition if you do intend to do any programming, but to provide practical details of the system. Because of the nature of the Amiga operating environment it will be necessary to consider some of the other libraries of routines such as the Graphics and Exec libraries. These will be kept to a minimum as the whole idea behind Intuition is to make it do all the work, allowing you to concentrate on the more important aspects of your program.

So what can Intuition do? The best way to think about Intuition is as something which integrates the various inputs from the user of the Amiga (i.e. mouse movements, keyboard actions, etc.) Intuition supplies the details to the programs which are running, after processing the data so that your program only receives the input which it requires. From a programmer's point of view, it is a very flexible and powerful tool and from a user's viewpoint, it provides a constant, friendly work environment which is (theoretically) independent of the particular program. Providing you stick to the rules, Intuition will handle almost any task you require both quickly and efficiently with the added

bonus that if it cannot help there are easy paths into the rest of the Amiga operating system.

Intuition is implemented in two ways. Firstly as a standard Amiga library which is opened by your program and contains all the ROM-based routines for its various jobs. Secondly it runs as a separate task, sitting on the input stream generated by the input device and filtering off the input it needs. This set-up is of fundamental importance in the Amiga's multi-tasking environment since your program should not access any hardware directly, but go through the operating system so that resources (such as memory or audio hardware) can be properly allocated and deallocated.

"Intuition does much of the allocation of memory and communicating with the Exec part of the system for you and so you are able to concentrate on your program's purpose in life."

Herein lies the key to avoiding confrontations with the infamous Guru. If you can get into the habit of writing water-tight code and ensuring that you only ask for resources that you require and that you give them back when finished then you should have very few difficulties with crashes. Debugging is made much easier when you can count on some help from the rest of the computer! Of course you can go to the Graphics Primitives and try to sort things out from there and indeed there are some cases (such as double buffering) where this is the

easiest way. Intuition does much of the allocation of memory and communicating with the Exec part of the system for you and so you are able to concentrate on your program's purpose in life rather than trying to cope with several types of input at once whilst updating a screen display and sorting your Christmas card list for next year.

You have probably noticed that the Amiga sports a natty little WIMP (windows, icon, mouse, pointer) interface which is naturally maintained by Intuition. Programs such as WorkBench, DPaint and Scribble! all have a characteristic "feel" about them which makes them very user-friendly and convenient. It is not necessary to learn endless combinations of keycodes in order to centre text or draw circles - the programs are controlled by the meaningful menus and requestors. That's all well and good for the user but what about us programmers and our software. How do we get the information? We simply tell Intuition what we want to know from the user and Intuition takes care of the rest. A standard system of message ports is used for different tasks (i.e. our program and Intuition) to talk to each other and this provides a means for communicating different events such as menu or requestor selections, changes in window characteristics or even key presses and timer information. This means that your program can go to sleep until the user requires its services and hence the 68000 is freed for other tasks to do their thing. The next question is where do we start? A quick glance at the IRM launches us straight in with screens and windows. This seems like a reasonable place to begin since these form the basic display elements of Intuition.

Screens

Screens are the means by which Intuition allows regions of the display to be split with widely different characteristics. For instance the user may wish to run DPaint in Lo-Res mode (i.e. 320 x 256 pixels resolution) and simultaneously have another program with a hi-Res (640 x 512) display. At a hardware level, the system employs the Amiga equivalent of raster interrupts (any 64 programmers out there remember those?) to split the display into regions of apparently different resolutions, colours etc.

The need for an Intuition-style system to co-ordinate all of these changes and to respond to the user's every whim regarding screen positions can be readily appreciated. Besides which it is incredibly tedious to mess around with loads of View and Viewport structures and the end result is not particularly conducive to multi-tasking. If everyone stuck to the rules and memory were a little cheaper we could all play StarGlider II and Leaderboard Golf whilst listening to one of those wonderful soundtracks which grace the Amiga's audio hardware at the same time.

If your program is relatively simple and does not require any fancy graphics modes or such like then you may simply use the WorkBench screen to open your windows and display your text. However this soon becomes limiting because only four colours are available for use. Thus it becomes necessary to open your very own Custom screen with its own resolution, colours, menus, windows, requesters and gadgets. The different graphics modes possible have been explained at the primitives level in previous issues of AUI and so I will not repeat the information here. The include files supplied with the various C compilers are a useful quick reference if you can print them out and the constants defined in the file graphics/view.h will tell you the screen modes available.

Windows

Screens are fine as far as screens go. You can write text into them, draw nice graphics and so on but when it comes to finding out what is being typed on the keyboard, checking on the wanderings of the mouse or acting on menu selections then you must use the windows. Why is this? Well Intuition needs somewhere to send its information to and this also provides you with a very flexible environment. The best way to understand this is to picture an application for generating adventure games. You have a Hi-Res screen with several windows in it for programming the various aspects of the game. Several text windows could be open to type in the text, and also to program the logic of the game. A window could be open to type in the text, and also to

program the logic of the game. A window could be dedicated to graphics entry and display. Output could go to separate windows for text and internal details of variables and flags could also be handled. A nightmare to keep track of you may think. You are probably correct but Intuition at least makes this possible since each window can attach its own menus and gadgets to the screen when it becomes activated by the user clicking the left mouse button. To all intents and purposes there are several entirely separate sub-programs running but in reality all the windows are managed by different parts of the same one. All your program has to do is to be able to handle the input from each type of window. Intuition can tell you which

"AmigaBASIC is a good (if slow!) example of the Intuition interface but certainly does not allow the programmer to exploit anything other than the most rudimentary aspects of the WIMP environment."

you should be looking at. This is quite a lot to take in all at once but as the series unfolds with programming examples to illustrate the ramblings of text, hopefully the full potential of Intuition will become apparent. AmigaBASIC is a good (if slow!) example of the Intuition interface but certainly does not allow the programmer to exploit anything other than the most rudimentary aspects of the WIMP environment.

There are several different sorts of Intuition windows but we will only consider the simplest for the time being. This provides a reasonably effective window without too much stress on our party. The SUPER BITMAP, GIMMEZEROZERO, BACKDROP and BORDERLESS are variations which have their own peculiarities and uses but are mainly for specialised applications.

The program at last

The example given demonstrates the basic stages involved in opening screens and windows and also how you can draw in them using the Graphics Primitives. The screen is Hi-Res and contains three bit-planes which amounts to $2^{3 \times 8}$ colours and a window with the full complement of system gadgets (i.e. open/close, sizing, dragging and depth arrangement). This will allow you to play around with the code and see what happens. The code is liberally supplied with comments to explain roughly what is

going on but there are few points worth mentioning. Firstly it is best to avoid using "magic numbers" in C programs and instead define constants at the start of the program. The colour values for the screen are stored in an array called colourtable, a pointer to which is sent to the primitive function LoadRGB4(). This then sets up the colour registers appropriately.

Intuition requires a pointer to a NewScreen structure when calling the OpenScreen() function. This data structure contains the details of how your custom screen will look, its size, and which pens to use in rendering the system gadgets and title bar.

The same goes for the NewWindow structure and a relatively basic window is set up. When you call OpenScreen() or OpenWindow you receive back a pointer to a Screen or Window structure in return. These are dynamically set up by Intuition so all your program needs to do is to provide a pointer so that subsequent calls to other Intuition functions are able to have some idea of the environment in which you are working. The most useful contents of the Screen and Window structures are the pointers to ViewPorts and RastPorts. These are data structures used by the graphics primitives in drawing etc.; examples of their use for this purpose are employed in the program function main().

I have used two functions for opening and closing the various Intuition items and libraries. This helps in ensuring that everything you open is closed at the end of the program and the resources allocated to the program are returned. Remember to close the libraries after you close the windows and screens since the CloseWindow() and CloseScreen() functions are contained in the Intuition library! It is also quite good practice to check that the Window and Screen structures exist before passing their pointers to the close routines otherwise you stand a fighting chance of a visiting to meditating guru.

The program is terminated when you click on the close window gadget. The code for this is slightly fudged and will be dealt with fully under the IDCMP article next month. Suffice it to say for now that I requested in the NewWindow structure for Intuition to inform me when that gadget is selected. After doing all the drawing, the program simply waits until the message is sent by Intuition that the CloseWindow has been selected. The program then closes the window itself (i.e. Intuition will not actually close the window automatically but inform you that the user wishes it. Who are we to argue?).

I hope to have introduced the

continued on page 40

Intuition philosophy and set you on the path to using it effectively. The program can be very easily modified to cater for most needs and you can experiment along these lines. You may notice some of the limitations

when drawing directly into screens in that no checks are made regarding anything else that may be present. Try altering the initial X-Y coordinates of the window to somewhere that the program draws over (e.g. the bottom

left of the screen) and see what happens. It is not a pretty sight and shows you why, if possible, windows should be used since Intuition is more careful about these.

```
/* Programming example: Intuition screens and windows */
/* By Mike Nelson StartDate 24-6-81 */

#include "exec/types.h"           /* Everyone uses these */
#include "intuition/intuition.h" /* Contains most graphics files also */

/* Do defines for colours */
#define WHITE 0 /* This is a convenient way of representing colours */
#define RED 1 /* in programs. #defines are preferable to magic */
#define GREEN 2 /* numbers which can be very confusing when they */
#define YELLOW 3 /* appear out of nowhere in the middle of 100K of */
#define AQUA 4 /* source code. */
#define PURPLE 5 /* Later on we use the primitive LoadRGB4 () to set */
#define BLUE 6 /* up the colour registers for us because it's not */
#define BLACK 7 /* the done thing to do it ourselves. */

/* now do colourtable array */
USHORT colourtable [8] = {
    0xFFFF, /* White */
    0xFF00, /* Red */
    0x00FF, /* Green */
    0xFFFF, /* Yellow */
    0x00FF, /* Aqua */
    0xFF00, /* Purple */
    0x0000, /* Blue */
    0x0000, /* Black */
};

struct Screen *Screen; /* These are POINTERS to structures which are */
struct Window *Window; /* generated by Intuition not actual structures */

/* Now do the NewScreen */

struct NewScreen NewScreen = {
    0, 0,                      /* start x & y of screen */
    640, 200,                  /* width and height */
    3,                         /* depth */
    0,                         /* DetailPen */
    1,                         /* BlockPen */
    HIRES, CUSTOMSCREEN, /* Thingys on end */
    NULL,                      /* default font */
    "This space is available for advertising",
    NULL,                      /* No gadgets ta */
    NULL,                      /* Nothing special about BitMap */
};

struct NewWindow NewWindow = {
    250, 60, 350, 40, /* LeftEdge, TopEdge, Width and Height */
    WHITE, BLACK,      /* DetailPen and BlockPen */
    CLOSEWINDOW,       /* IDCMP flag to quit program */
    WINDOWCLOSE | SMART_REFRESH | ACTIVATE | WINDOWSIZING |
    WINDOWDRAG | WINDOWDEPTH | NOCAREREFRESH, /* Gadgets */
};

/* continued on page 46
```

Brown Wagh

DIRECT

Word Processing

	£ New Price	£ RRP
Excellence!	99.95	199.95
ProWrite 2.0	54.95	85.10
Scribble!	29.95	49.95

Video & Animation

	£ New Price	£ RRP
Aegis Animator	44.95	103.50
The Director	29.95	49.95
Fantavision	39.95	49.95
Forms in Flight 2	59.95	79.95
Lights, Camera, Action	39.95	57.50
Modeler 3-D	49.95	65.95
ProVideo Plus	149.95	199.95
Sculpt 3-D Animate	79.95	105.95
TV* Show	24.95	69.95
TV* Text	24.95	69.95
Videoscape 3-D	84.95	115.95
Video Titler	64.95	86.95
Zuma Fonts 1-4 (6ea.)	14.95	19.95

Productivity

	£ New Price	£ RRP
File 11sg	29.95	99.95
Microfiche Filer Plus	84.95	119.95
Online! Telecomm.	24.95	49.95
Analyze! Spreadsheet	39.95	49.95

Desktop Publishing

	£ New Price	£ RRP
Publisher Plus	39.95	54.95

Utilities

	£ New Price	£ RRP
Disk 2 Disk	19.95	34.99
Dos 2 Dos	19.95	39.67
Quaterback	29.95	34.95
Project D	24.95	34.95
Zing	34.95	45.95

Graphics

	£ New Price	£ RRP
Butcher 2.0	19.95	25.95
Calligrapher 1.05	59.95	79.95
Digi-View Gold	89.95	119.95
Express Paint 3.0	39.95	49.95
Impact	39.95	54.95
Photon Paint	49.95	69.95
Pixmate	34.95	39.95
Sculpt-3D	59.95	85.00
Turbo Silver	89.95	119.95
3-Demon	49.95	59.95

Music

	£ New Price	£ RRP
AudioMaster	49.95	65.95
Dynamic Drums	39.95	54.95
Dynamic Studio	99.95	129.95
Midi Magic	29.95	49.95
Midi Rec. Studio	34.95	49.95
Sonix	34.95	44.95

Games

	£ New Price
Arkanoid	13.95
Battle Chess	21.95
Bubble Ghost	19.95
Capone	19.95
Captain Blood	21.95
Champ Football	19.95
Fire & Forget	19.95
Firepower	14.95
Flight Simulator	21.95
Fourth and Inches	21.95
Gee Bee Air Rally	19.95
Harrier Combat	21.95
Hole-in-1 Golf	19.95
Hybris	19.95
Indoor Sports	21.95
Letherneck	19.95
Major Motion	19.95
Paladin	19.95
POW	19.95
Stellar Conflict	19.95
Superstar Ice Hockey	21.95
Tanglewood	19.95
Uninvited	21.95
Vampires Empire	19.95
Virus	19.95
WordPlex	19.95
World Class Leader	21.95
Zoom	14.95



Get Up and Call In Now

Please Make cheques/postal orders payable to:

BROWN-WAGH DIRECT 2 Hazlitt Mews, Hazlitt Road, London W14 0JZ



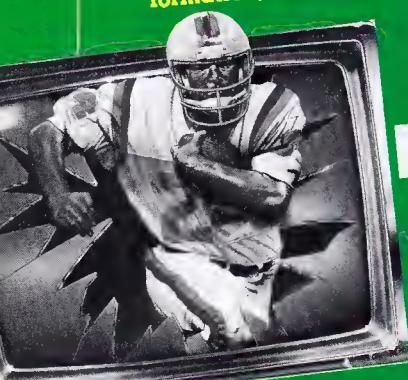
Prices exclude VAT
P.&P. in UK add
£2.00 for EEC orders

01-603 3313

Following a string of stunning interactive movies, Cinemaware are now turning their attentions to sport simulations. American football is first on the list.

It has become a tradition that Cinemaware games are always fronted by detailed animated intros, and this is where the TV of the title comes in. A shot of a well-groomed presenter sitting seriously at his studio desk opens the proceedings. As the lights go up he musters up a cheesy grin and breaks into his pre-game build up.

The toss of a coin decides who gets the choice of kicking-off or receiving. You don't get to see the kick-off, so the action starts as the receiving team gets hold of the ball. A few seconds later it's into the play selection screen. From here the offence first choose a formation, pro-set or shotgun for example. Next you get a choice of four variations on the formation, helpfully illustrated with straight-



TV Sport

forward diagrams. At the same time the defence selects a line and tactics such as blitz or pass defence. All the selections are acknowledged with a bleep but are not revealed to the opposing team.

Down on the pitch the defending player can cycle through his team to take control of any available man. Once the quarterback gets the ball he has a few seconds to line up the pass. Moving the stick left and right directs his throw and pressing the button launches the ball. Using a cross projected a short way in front of the ball you have to time the length of the throw.

Control switches to the receiver, but not for long as the computer's defence are down on you like a ton of bricks. If you manage to score a touchdown there is the opportunity of an extra point from the kick. You can either leave it up to the computer (he's not perfect and sometimes misses) or do it yourself. Either way, you get an animated 3D view from behind the kicker followed by a sampled voice announcing the outcome.





TV Sports Football

Cinemaware



"Now control switches to the receiver, but not for long as the computer's defence are down on you like a ton of bricks."

Solo players are likely to find the computer opponents too skillful to begin with but ultimately too easy with practice. For this reason TV Sports Football is best played against a friend. In the action scenes the players are superbly animated and detailed in their movements. However, one problem I found was that the men under player control flash, but they flash rather slowly between the two colours of the opposing teams. This can lead to confusion when a brief glance at a player isn't enough to determine whether he has the ball, or even whether he is on your team!



The excellent sound effects are not just for show, as they can let you know above all the action that a pass has just connected, or the quarterback has just been sacked.

Sampled sounds and giant-sized graphics have an enormous appetite for memory and the game comes on two disks. That is fine with a dual-drive system, but disk swapping can become irritating after a while on single-drive machines. Part time US footie fans could find the game a bit too long but then that's just like the real thing.

This month TV Sports Football is challenged by US Gold's 4th & Inches, but Cinemaware's game far out-classes it. There is all the strategy of the game combined with realistic action on the pitch, making it the best ever computer simulation of the game, and I can't see anyone surpassing it for a long time to come. There is just one thing: thirty pounds is an awful lot to ask for a computer game, but no doubt hardcore gridiron fans will think it cheap...

T.H.



Graphics: 9
Sound: 9
Playability: 8
Value: 7
Price £29.95

Heard It On The Grapevine

Late at night a figure skulks on street corners, he hides in mail boxes and taps the phones...It's Tony Hargan tuning in to the latest on the grapevine circuit...

graphics consist of sprites and scrolling backgrounds (superb though they are) as opposed to super-fast 3D, it should convert extremely well to the Amiga.

In keeping with tradition,

Coin-op conversions are becoming increasingly popular on the Amiga (popular with the software houses at least), and US Gold's bulk licensing deal with Capcom is dominating their line-up of imminent releases.

TIGER ROAD is a fairly traditional scrolling platform adventure with an oriental flavour. Some dark stranger has kidnapped a bunch of toddlers, and you have volunteered to carry out the rescue mission. Spiky mace in hand, you set out to bash some bounces and generally show the baddies who's boss. Tiertex have come up with the goods on the graphics side, with some beautifully shaded sprites and backgrounds hidden in the game's deeper recesses. Fortunately the programmers have improved their scrolling routines since the jerky conversion of Rolling Thunder and the whole thing looks very promising.

LED STORM and LAST DUEL are a couple more that have made their way to the Amiga via Capcom's arcade machines. Both put you in control of a sleek red sports car driving up a vertically scrolling assault course, jumping over gaps in the road. Where they differ is that Last Duel is more of a shoot 'em up than the straight car race of LED storm.

My favourite machine currently doing the rounds of



arcades at the moment is GHOULS 'N' GHOSTS, the sequel to the brilliant Ghosts 'n' Goblins. Stunning graphics and loads of new ideas have been combined with the instantly playable platform

"Grim reapers, mad magicians, vultures, carnivorous trees and pigs are some of the savage beasts that turn up in the opening stages."

action of the original. Grim reapers, mad magicians, vultures, carnivorous trees and pigs are some of the savage beasts that turn up in the opening stages. As most of the

Hewson's next 16-bit release is a shoot 'em up going by the name of CUSTODIAN. The star of the show is a jet-packing spaceman, who in his excitement has a tendency to bend double and wear a moronic grin throughout the game. Plenty of mega-weapons and suicidal aliens make this one to look out for if you're a zap-happy joystick-junkie with a will to kill.

Finally there's the news that US Gold have scooped up the rights to produce a computer game of Michael Jackson's weird and wacky Moonwalker movie. Just what kind of a game they intend to write around the collection of tracks from Bad and a flimsy anti-drugs storyline, we'll just have to wait and see...

T.H.

SCFTWARE BARGAINS

**GUARANTEED
LOWEST PRICE** - We will match or beat any other advertised price

Photon Paint 34.95
Sonix 34.95
The Works 69.95
Transformer 19.95
Games - All titles
20% off RRP

**S O F T W A R E
P R I C E S I N C L U D E
V A T A N D
D E L I V E R Y**

PERSONAL CALLERS WELCOME
AT OUR BRANCHES - PLEASE
BRING A COPY OF THIS AD WITH
YOU TO TAKE ADVANTAGE OF
SPECIAL MAIL OFFER PRICES

**FULL AND PART-TIME STUDENTS (SCHOOL OR FURTHER
ED.) LECTURERS, EDUCATIONAL ESTABLISHMENTS,
LOCAL AUTHORITY WORKERS, MEDICAL WORKERS, ETC.**

IF YOU CAN PROVIDE AN ORDER ON HEADED NOTEBOOK, OR A LETTER FROM YOUR PLACE OF EDUCATION
STATING THAT THE EQUIPMENT WILL BE USED FOR WORK OR STUDY PURPOSES, YOU ARE ELIGIBLE FOR
SPECIAL LEISURE/EDUCATIONAL PRICES - PLEASE RING IF YOU THINK YOU MAY ALSO QUALIFY:

**AMIGA 2000, 1084S MONITOR, 3.5" DRIVE, 5.25" DRIVE
AND XT BRIDGE BOARD, PHOTON PAINT**

£1099 + vat

NORMAL PRICE £2295 + VAT

**AS ABOVE, ALSO WITH 20 MB PARTITIONABLE AMIGADOS/
MS DOS HARD DRIVE**

£1399 + vat

NORMAL PRICE £2994 + VAT

AMIGA 500 PACKS: GAMES PACK

Incl. Modulator, Photon Paint, 22 games on 4 discs; Arcade, Adventure, Board and Shoot-em-up games, plus Goldrunner, Karate Kid II, Splitting Image, Hell Bani, International Soccer, Winter Olympiad, Quadrilateral, Star Goose, Bubble Ghost

£399.99 inc. VAT

MUSIC PACK

Incl. Modulator, Photon Paint, 22 games on 4 discs; Arcade, Adventure, Board and Shoot-em-up games, plus Sonic Music Package, Karate Kid II, Carrier Command, Goldrunner games

£429.99 inc. VAT

PROFESSIONAL PACK

Incl. Modulator, Photon Paint, 22 games on 4 discs; Arcade, Adventure, Board and Shoot-em-up games, plus

The Works Database, Spreadsheet and Word Processor, with Mail Merge and Spell Checker

£449.99 inc. VAT

EXPANDED PACK

Incl. Modulator, Photon Paint, 22 games on 4 discs; Arcade, Adventure, Board and Shoot-em-up games, plus

A501 RAM Expansion and Dragons Lair game

£549.99 inc. VAT

AMIGA 500/1084S PACK

As above, but with NEW 1084S Monitor, without Modulator

GAMES/1084S PACK £629.99 inc. VAT

OTHERS ALSO AVAILABLE

ORDERING

Send cheque or Postal Order for total, plus £8 per hardware item (software carriage free) and VAT where appropriate, to DEPT AAU, Hobby Computers Ltd., 10 Market Place, St. Albans, Herts AL3 5DG. If you have ACCESS or BARCLAYCARD, phone your order to our Sales Desk on 0727 56005.

2nd 3.5" DRIVE FOR A500 £87

386 K HIGH QUALITY WITH 12 MONTH GUARANTEE
AMIGA A500 MODULATOR £17

DIGIVIEW, VIDEO CAMERA, LENS & LEADS £349

A501 RAM EXPANSION £119

PRICES ARE EX-VAT



Chameleon ADAPTING

TECHNOLOGY TO

YOUR ENVIRONMENT

10 MARKET PLACE

ST ALBANS HERTS AL3 5DG

TEL (0727) 41396/56005

19 THE ARNOLE CENTRE

LUTON BEDS LU1 2PG

TEL (0582) 457195/411281

Prices correct at time of going to press, but are subject to change without notice E & OE.

Hobbytpe

COMPUTING

INCORPORATING *Busytye*
BUSINESS COMPUTER SERVICES

c commodore

FROM £369!
AMIGA

Prices include 15% VAT, FREE delivery to your door, and 1 year manufacturer's warranty. Add £12 for next day delivery.

PERIPHERALS
AMIGA

■ 512K plug-in RAM/ROM clock (A500)	£139	■ 3½ inch internal drive (A2000)	£89
■ A1084S stereo colour monitor	£279	■ Cumana 5½ inch external drive	£149
■ A1081 high-res colour monitor	£225	■ 3½ inch twin-port external drive	£99
■ MicroTec Teletext Adaptor	£139	■ A1010 3½ inch external drive disk	£149
■ Geotech PAL television/FM	£799	■ A2092/20 MB AmigaDOS hd disk	£375
■ MiniGen PAL Genlock	£115	■ A2092PC 20MB MS-DOS hd disk	£425
■ Digiview Gold video digitizer	£150	■ Super 30MB external hard disk	£625
■ DigIPIC fast frame grabber	***	■ Selcom 40MB removable hd disk	£995
■ SuperPic digitiser + genlock	£475	■ Micron 2Mb RAM card A2000	£459
■ Handy Scanner 240 dpi scanner	£295	■ A2088 PC-XT board & 5½" drive	£475
■ Easy! A4 drawing tablet A2000	£325	■ A2286 PC-XT bridge board	Phone
■ Cherry A3 digitizing tablet	£599	■ Star LC10C colour 120 cpsi, NLQ	£275
		■ HP PaintJet colour, 160 dpi	£995
		■ HP DeskJet 300 dpi inkjet BW	£795
		■ Xerox 4020 colour inkjet 240 dpi	£1095
		■ SupraModem 2400 300-2400 bps	£189

Why not enjoy the free Teletext databases with the MicroText Teletext adaptor. Fully programmable with Fastext and Inkey, it also has a fast 16 page double page view, teletextware louder, auto-start/background operation... Pages can spoken, printed as ASCII or graphics, saved as ASCII or DIF files... With digital tuning for crystal clear colour TV/sound reception on any A1081/1084/CMS883 monitor! Uses Parallel port with throughport for printer. Available from stock for only £139!

TELETEXT
AMIGA

■ PRODUCTIVITY	■ Workbench V1.3 Enhancer	£15.95
■ AMIGA	■ C64 Emulator V2.0 with cable	59.95
	■ BBC Emulator	Phone
	■ A/C Fortran	179.95
	■ Lattice C V5.0	159.95
	■ Lattice C Professional	249.95
■ SuperBase Personal	Relational database with programming	49.95
■ SuperBase Personal 2	As above, plus text, mail merge, batch entry etc.	69.95
■ SuperBase Professional	With Forms Editor and DML program language	159.95
■ SuperPlan	Pro SpreadSheet with business graphics, file planner	69.95
■ Acquisition V1.3	Relational database with programming language	159.95
■ Maxplan Plus	Ultimate spreadsheet, text/graphics/pesch/macros	99.95
■ Businessware Accts 2	General Ledger, Purchase Ledger, by Pinmead	129.95
■ Businessware Accts 1	Invoicing, Sales Ledger, Stock Control, by Pinmead	129.95
■ Home Accounts	Comprehensive personal accounts, simple to use	29.95
■ DGCalc	All the spreadsheet essentials, easy to use	39.95
■ A/C Basic	Compiled Amiga Basic... FAST!	124.95
■ MCC Pascal V2.0	Exceeds ISO 7185 specs, indexed 330-page manual	69.95
■ MCC Assembler	Professional development system with linker & libraries	59.95
■ Ultra Dos Utilities	High speed disk backup, ideal for hard-disk users	39.95
■ Dos 2-Dos	Reads/writes MS-DOS on 5½" & 3½" drives	34.95

Superbase
PROFESSIONAL

If you can think of it, SuperBase Professional can do it! With its unique combination of incredibly simple data management, massive processing ability and high-level program language, SuperBase Professional is the only choice for your Amiga. And with text, sound and graphics management, plus relational data handling, SuperBase Professional is essential for both beginner and expert...

CREATIVITY
AMIGA

■ The Works	■ Digipaint (PAL) 4096 colours	£39.95
■ ProText V4.0	■ PixMate V1.1	39.95
■ ProWrite V2.0	■ Photon Paint	49.95
■ VizArt/Visart Desktop V2.0	■ City Desk V2.0	139.95
■ Word Perfect	■ Page Setter	79.95
■ Flow	■ Excellence	179.95
■ Professional Page	Analyze + Organize + Scribble, integrated desktop	69.95
■ Publisher Plus	New fast WP with English dictionary	79.95
■ Pro-Video CGI	Wordprocessing fully integrated with graphics	79.95
■ Digitel	High performance desktop WP, now with HD fonts	69.95
■ Express Paint V2.0	Amiga version of the No.1 best selling wordprocessor	179.95
■ Prism Plus	Includes WP, Desktop, column separators, CD	39.95
■ X-Cad	Professional version of the original digitel painter	99.95
■ Intro Cad	Professional font editor, fonts up to 128 x 256 pixels	79.95
■ Aegis Draw Plus	Overscan PAL + 64 colour Extra Half Braille, text merge	49.95
■ Aegis VideoDraw	4096 HAM colour paint pack 1204 x 1024 (needs 1MB)	49.95
■ Aegis Sonix V2.0	Professional CAD system (needs 2MB)	359.95
	Entry level CAD package, printer or plotter output	39.95
	Comprehensive CAD with multiple layers & windows	149.95
	Four 300 dpi scanners in all resolutions with one scan	124.95
	Score, edit, synthesise, improvise, Midi compatible	39.95

■ ■ ■ IF YOU WANT IT TOMORROW... CALL US TODAY! ON 01-546-7256 ■ ■ ■

Prices are POST FREE & include VAT
Order by phone with your credit card
or send cheque/PO or your credit card
number. Official orders welcome. We
do not accept cheques by AIRMAIL.
post. Please allow 5 days for delivery
of hardware orders. Prices are quoted
subject to availability.



Calco
Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7OT. TEL 01-546-7256

```
NULL,           /* No gadgets on offer today sorry */
NULL,           /* Nothing as sophisticated as a CheckMark */
"Mike's WINDOW!", /* I'm titled you know */
NULL,           /* Pointer to Screen structure */
NULL,           /* Intuition gives us the BitMap so ignore this */
100, 25,        /* Min Width & Height */
640, 300,       /* Max Width & Height */
CUSTOMSCREEN   /* Type i.e. what sort of screen we appear in */
);

/* These are used when gaining access to the various libraries of ROM
routines */

struct IntuitionBase *IntuitionBase;
struct GfxBase *GfxBase;

/* Screen ViewPort & RastPort. Keep these global so that any part of the
program can use the Graphics Primitives for drawing etc */

struct RastPort *ScreenRP;
struct ViewPort *ScreenVP;

void main (), OpenStuff (), CloseStuff();

void main()
{
    int x,y; /* Used for drawing the pattern */

    OpenStuff ();

    /* Now try something in the window */

    Move (Window->RPort, 20, 20);
    Text (Window->RPort, "And through the square window today", 25);

    /* What about the screen? */

    Move (ScreenRP, 00, 00);
    Text (ScreenRP, "Hello Mum!", 10);

    SetAPen (ScreenRP, BLUE);
    SetDrMd (ScreenRP, JAM1);
    Move (ScreenRP, 20, 30);
    Text (ScreenRP, "This text should be in blue.", 22);
    SetAPen (ScreenRP, YELLOW);
    Move (ScreenRP, 20, 40);
    Text (ScreenRP, "And this in yellow.", 19);

    /* Let's draw a fancy pattern with line draws */

    SetAPen (ScreenRP, BLACK);
    y = x = 5;
    Move (ScreenRP, x, y);
    Draw (ScreenRP, 5, 195);
    Draw (ScreenRP, 635, 195);

    for (y = 5; y < 196; y += 5)
    {
```

```

x = y * 680 / 190;
Move (ScreenRP, 5, y);
Draw (ScreenRP, x, 195);
}

Wait( 1 << Window-> UserPort-> mp_SigBit);

/* Ouch what is this chunk of fudge? Don't worry all will be revealed
in the next thrilling instalment. All it does is wait until you
click on the "CloseWindow" gadget to quit program. */

/* Shut up shop and return all resources to E-ec */

CloseStuff ();

} /* End of main so bye bye */

void OpenStuff (){

/* Now open the libraries i.e. Graphics and Intuition */

IntuitionBase = (struct IntuitionBase *) /* These two lines are all */
    OpenLibrary ("intuition.library",0); /* one statement! */           */
if (IntuitionBase == NULL) exit (FALSE); /* Ask for a refund! */      */

GfxBase = (struct GfxBase *) OpenLibrary ("graphics.library",0);
if (GfxBase == NULL) exit (FALSE);

/* Open the screen */

if ((Screen = (struct Screen *) OpenScreen (&NewScreen)) == NULL){
    CloseLibrary (IntuitionBase);
    CloseLibrary (GfxBase);
    exit (FALSE);
}

ScreenRP = &Screen -> RastPort; /* Set a convenient pointer to the Screen
                                RastPort structure */
ScreenVP = &Screen -> ViewPort; /* and also the ViewPort! */
LoadRGB4 (ScreenVP, colourtable, 8); /* Should load in the colours! */

NewWindow.Screen = Screen; /* Set pointer to Screen */

/* OK now Open it! */

if ((Window = (struct Window *) OpenWindow (&NewWindow)) == NULL){
    CloseScreen (Screen); /* Seriously shortage of memory */
    CloseLibrary (IntuitionBase); /* will cause this to occur or */
    CloseLibrary (GfxBase); /* a duff NewWindow structure */
    exit (FALSE);
}

void CloseStuff (){
    if (Window) CloseWindow (Window);
    if (Screen) CloseScreen (Screen);
    if (IntuitionBase) CloseLibrary (IntuitionBase);
    if (GfxBase) CloseLibrary (GfxBase);
}
}

```

MEDIA LINE FONTS

John Walker considers a package that goes some way to remedy an ugly defect.

While I sit typing at a computer keyboard, I often think how odd it is that the electronically-formed characters appearing on the screen owe their shapes to far cruder and more basic technologies: a scribe with a goose-quill and ink, and a stone-mason with a hammer and chisel.

Most of what we read owes its form to the letters carved on the Trajan Column in Rome in more than 1,800 years ago. From that source comes our liking for elegant serif typefaces; those with varying thick and thin lines and with cross-lines at the end of each stroke.

Sans serif typefaces (you are reading one now), which lack the cross-lines and have lines of equal thickness, can be traced back to the ancient Greeks — although it is only in this century that they have gained great popularity for setting text.

Much printed information still derives its style from the pens of the Italian scribes of the 1450s. It is an influence that has survived changing technologies, from hand-crafted letters to hot metal methods, cold photographic approaches and the current cool computer technology.

What we really need now are typefaces designed for computers — ones that can make advantage of the machine's capabilities and overcome its limitations. The problem with computer printing from the screen, at a basic dot-matrix level, is that of resolution: bitmapped fonts have jagged edges and curves.

It is something that Commodore ignored when providing bit-mapped fonts for the Amiga. All are ugly, with ill-formed characters, and most reproduce poorly. Commodore has begun to rectify its errors by supplying four Adobe PostScript fonts — Courier, Helvetica, Times Roman, and Symbol — on the Extras disk that comes with its 1.3 Enhancer set.

While these reproduce quite well with a dot-matrix printer, they are really meant for use with a PostScript laser printer. Commodore has made no attempt to improve its bit-mapped fonts.

For that reason, it is possible to give a moderately warm welcome (slightly hotter than tepid) to Media Line's Amiga Font Disk 1, which provides nine different bit-mapped fonts in three styles: normal, bold, and italic. It is difficult to be more enthusiastic, since the selection of fonts is on the dull side and the range of sizes provided is restricted. Much more, too, could have been fitted on the single unprotected disk on which they are contained, since that is less than half full.

The fonts, designed by a Dane, Tore Bahnsen, are intended, according to the packaging, for 'profes-

sional use in video presentation, graphics, animation and desktop publishing'. I tried them with Deluxe Paint, Photon Paint, ProWrite 2.0 and PageSetter. Of the nine fonts, two — Metro Book and Mermaid — are in 12 point sizes, which are used for printing body-text. The other six are display types, intended for headings. The main drawback here is their small size: the largest, Spot, is 37 points (or lines) high.

Eight are sans serif fonts. The other, Mermaid, is a serif font which looks uglier than most because of its sloping strokes, particularly on its 'e' and 'a'. Mermaid is provided in 12 and 24 point sizes. According to Bahnsen, it is based on the Souvenir font, which has never had much to recommend it. Mermaid's letter-shapes derive from one of the earliest Roman typefaces, that of Nicolas Jenson, which dates from the 1470s. Jenson combined chiselled letter shapes with more flowing handwritten styles. Neither transfers well to bitmapped printing since dots and smooth curves do not mix.

MetroBook, which is available in 12 and 27 point sizes is a sans serif

Leander 26 is a thin sans serif font - AaBbCcDdEe

Mermaid 12 is a serif font, with a sloping 'e' - AaBbCcDdEeFfGgHhIiJjKkLl

Mermaid 24 is the larger version - AaBbCc

Metro Book 12 is intended for use in desktop publishing - AaBbCcDdEeFfGgHhIiJjKk

Metro Book 27 is a version for headings - AaBbCc

Metro Demi Bold 29 is heavier - AaBbCcDd

Metro Display 34 has '20s feel - AaBb

Raster 28 has jagged edges - AaBb

Sausage 31 is very heavy - AaBbCcDd

Spot 37 is three dimensional - Aa

Scanner 34 is an unusual font - AaBbCcDd

SEARCHING AMIGADOS DIRECTORIES

The AmigaDOS resident library consists of a small core of routines which simplify the interface between a program and the Amiga's disk filing system. One of the first things that a programmer wishing to use these routines must understand is how to search an AmigaDOS directory/file structure. It is not that difficult to do but, judging by some of the letters that we have had, it is an area that you would like us to discuss — so here we go . . .

Locks and Lock()

You will come across the term 'Lock' quite often in the AmigaDOS literature. It is a data structure used by AmigaDOS and, if you look in the 'dosextens.h' header file you will see this particular definition . . .

```
struct FileLock {
    BPTR     f1_Link;          /* A bcpl pointer to next lock */
    LONG     f1_Key;           /* disk block number */
    LONG     f1_Access;        /* exclusive or shared */
    struct Ms gPort *f1_Task;  /* Handler task's port */
    BPTR     f1_Volume;        /* A bcpl pointer to a device list */
};
```

You don't need to know much about these structures in order to use them but, for the curious, here's a brief rundown . . . 'f1_Link', f1_Task and f1_Volume contain information which is really only of interest to AmigaDOS itself — you're unlikely to need these fields, and you certainly should not interfere with them. There are two fields which you may find occasional use for . . . these are the f1_Key field, which is the location on disk of the directory of file header block, and the

**Paul Andreas
Overaa**

f1_Access field, which shows whether the lock is for a 'shared read' or 'exclusive write'.

The AmigaDOS routine which initializes such structures for you is called Lock () and has the following format:

```
lock_pointer = Lock (name, mode)
```

The first parameter, 'name', is a normal C string pointer, i.e., the start address of a null terminated string.

The second parameter, 'mode' can take one of two values ACCESS_READ or ACCESS_WRITE. The values for these items are defined in the dos.h header file with SHARED_LOCK and EXCLUSIVE_LOCK being defined as acceptable synonyms.

The Lock() function will return either a valid pointer to a FileLock structure, or it will return a zero indicating failure. If, as an example, you want to get a shared read lock on the root directory of DF1: you could use Lock() like this . . .

```
RootDirLock = Lock ("DF1:", ACCESS_READ);
```

The zero failure convention is convenient because it allows us to use implicit conditional testing. This means that instead of having to write this type of code . . .

```
RootDirLock = Lock ("DF1:", ACCESS_READ);
if (RootDirLock!=NULL)
{ actions to be performed; } .
```

we can use the more concise implicit test form . . .

```
if (RootDirLock = Lock ("DF1:",ACCESS_READ))
{ actions to be performed; }
```

In both cases the call to Lock(), if successful, results in RootDirLock containing a pointer to the appropriate FileLock structure. Once such a FileLock pointer is available there are two routines, Examine() and ExNext () which enable detailed information to be obtained about the directories and files present in this part of AmigaDOS's file/directory structure.

Examine()

This routine uses your lock pointer to complete a 'FileInfoBlock' structure. The FileInfoBlock structure is defined

FALCO

Spectrum HoloByte



Until now, Electronic Arts' Interceptor was the unchallenged king of the skies. All that could change very soon, if first impressions of Falcon are anything to go on.

One of Interceptor's strongest points in my view was its user-friendliness. A novice could be up and looking on to Migs with no more than a glance at the key guide. For some, that was interpreted as a lack of realism, and it was accused of being too shallow. Falcon is the game for all those "serious" flight sim fanatics who found EA's airborne offering too undemanding.

Coming out on top of a dogfight in an F-16 Falcon takes years of practice, and although

N



programmers Spectrum Motobyle have not taken things that far, realising their simulation is going to be far from easy. For a start, the head-up display is one of the most complex ever seen. As well as the dial-packed front panel, views to your left and right contain essential flight info (not to mention a pretty view). A spotter plane view is even available for getting your bearings and fast orientating the game's spectacularly spacious graphics. With the zoom and rotate functions just about any view-point can be selected.

An abundance of extra screen messages throughout the game include crash warnings in the form

of sampled speech, short snapshot sequences illustrating the course of your demise or the success of your mission, and an oh-monoevers button mode. With five skill levels and twelve missions, a biplane flight recorder, blackouts and readouts from excessive positive and negative g forces, together with the highly convincing solid 3D graphics, Falcon looks to be the most realistic flight sim yet seen on the Amiga.

If needs a thorough examination which means many, many hours of practice and 'play' it certainly looks worth it. T.H.





Programmed by Irish programmers Emerald Software, Phantom Fighter is a vast improvement over Martech's previous efforts on the Amiga, bringing it up to the standard it achieved with its Oskar-winning 8 Bit games.

A traditional scrolling alien zapper, Phantom fighter takes you through six death-spewing levels, starting with the Cavern of Despair. Your transport for this suicide mission is a rotund ship, nicely fashioned in polished copper. As has become that standard, the aliens glide onto the screen in their pre-programmed flight paths. Unlike most however, the order of the attack waves is random, avoiding a certain amount predictability and providing a constant and difficult challenge.

Huge skulls and skeletons lie semi-submerged in the dunes while the battle continues in the skies above. Despite the dramatic change of scene, the only noticeable differences in play are the ground-based missile launchers and the double guardian.

Back to the horizontal scrolling for the third level which is played against a backdrop of a weird rock formations riddled with squirming tentacles. Survive both that and the lava-dribbling volcano level that follows, and you enter the final scene set in a giant robot factory.

Nothing too adventurous has been attempted with the sound, just the standard zap-kapow effects and a backing tune.

Phantom Fighter's background graphics are

PHANTOM FIGHTER

Martech

Terminate a whole gang of aggressors and you may be lucky enough to find a discarded weapons pod. In the style so favoured by Capcom's coin-ops, shooting these alters the type of armaments they yield. Faster reloading and ship movement are a couple of the more basic add-ons, while side-shots, double strength lasers and plasma bolts make alien annihilation a pleasure. Homing missiles take the strain out of every-day zapping, but make sure you re-arm before coming face to face with a mothership against which they are totally useless.

Once the first level guardian has been seen to, the scrolling switches from horizontal to vertical. From the spooky caverns you emerge over an equally spooky dinosaur graveyard.

often stunning, making superb use of colour and shading. It is a shame that the aliens weaving their way across the screen look so separate from these graphic masterpieces. The potential for interactive sprites and backgrounds is immense in Phantom Fighter. Sadly, less of this is tapped than might have been hoped and due to the lack of innovation in any other areas, the game is no more than a well-produced but unremarkable shoot 'em up.

It is worth taking a look at for its spectacular graphics and does have an agreeable addictive feel about it. Martech could make an impact with this one.

T.H.

Graphics: 8
Sound: 6
Playability: 7
Value: 7
Price: £19.99



AMIGA SPECIALISTS

Unit 1, Willowsea Farm, Spout Lane North, Stanwell Moor, Staines, Middx. TW19 6BW
Telephone: (0753) 682988

SOFTWARE LIST

TITLE	S.S.P.	OUR PRICE
-------	--------	-----------

20,000 Leagues Under the Sea ...	19.99	13.50
4 x Off Road Racing ...	24.99	19.50
Aaargh! ...	19.99	13.50
Action Service ...	19.99	13.50
Adventure Con. Set ...	29.99	20.50
Alien Syndrome ...	24.99	16.50
Aliens Reality ...	24.99	16.50
Annals of Rome ...	24.99	16.50
Archon Collection ...	24.99	17.50
Arkanoid II Revenge of Doh ...	24.99	16.50
Armageddon Man ...	19.99	14.50
Army Moves ...	24.99	16.50
Around The World in 80 Days ...	19.99	13.50
Artic Fox ...	24.99	17.50
Atax ...	14.99	10.25
Autoduel ...	24.99	16.50
Balance of Power ...	29.99	19.50
Bard's Tale I ...	24.99	16.50
Bards Tale II ...	24.99	17.50
Basket Ball ...	24.99	19.50
Battle Chess ...	24.99	17.50
Bermuda Project ...	24.99	16.50
Better Dead Than Alien ...	19.99	13.50
Beyond The Ice Palace ...	19.99	16.50
Beyond Zork ...	29.99	19.50
Bionic Commandos ...	24.99	16.50
Bomb Jack ...	24.99	16.50
Bombardier ...	24.99	16.50
Bubble Ghost ...	19.99	16.50
Buggy Boy ...	24.99	16.50
California Games ...	19.99	16.00
Capone ...	29.99	19.50
Captain Blood ...	24.99	16.50
Carrier Command ...	24.99	16.50
Chessmaster 2000 ...	24.99	17.50
ChronoQuest ...	29.99	19.50
Chukie Egg ...	19.99	13.50
City Defense ...	14.95	10.25
Cooperates Int'l Vol. II ...	19.99	13.50
Corruption ...	24.99	16.50
Cosmic Bouncer ...	19.99	13.50
Crash Garret ...	24.99	16.50
Crystal Hammer ...	14.99	10.25
Cybernode ...	19.99	13.50
Daley Thompson ...	24.99	16.50
Deja Vu ...	29.99	19.50
Destroyer ...	24.99	16.50
Double Dragon ...	24.99	16.50
Drunken Master ...	24.99	16.50
Dungeon Master (1 Meg only) ...	24.99	16.50
Ear Weaver Baseball ...	24.99	17.50
ECO ...	24.99	16.50
Eliminator ...	19.99	13.50
Erie ...	24.99	16.50
Emerald Mines ...	19.99	13.50
Empire ...	24.99	17.50
Empire Strikes Back ...	19.99	13.50
Enlightenment ...	19.99	13.50
Espresso ...	24.99	16.50
Fairy Tale Adventure ...	49.99	26.50
Falcon F-16 ...	29.99	19.50
Fernandez Must Die ...	24.99	16.50
Ferrari Formula One ...	24.99	17.50
Final Assault ...	19.99	16.00
Fire and Forget ...	24.99	16.50
Firezone ...	24.99	16.50
Fish ...	24.99	16.50
Flight Sim. II ...	39.99	26.50
Football Director II ...	19.99	13.50
Footbal Manager II ...	19.99	13.50
Fusion ...	24.99	17.50
Galactic Conqueror ...	24.99	16.50
Garynede ...	9.99	7.00
Garfield ...	24.99	16.50
Gee Bee Air Rally ...	19.99	13.50
Gettysberg ...	29.99	22.50
Giganoid ...	14.99	10.25
Growth ...	14.99	10.25
Hellbent ...	9.99	14.50
Heimlich Attack ...	14.99	10.25
Hellraiser ...	14.99	10.25
Heroes of the Lance ...	24.99	19.50
Hostages ...	24.99	16.50
Hotshot ...	24.99	16.50
Ice Hockey ...	24.99	16.50
Ikar Warriors ...	24.99	16.50
Impossible Mission II ...	19.99	16.00
Ingrids Back ...	19.99	13.50
International Soccer ...	19.99	13.50
Interceptor ...	24.99	17.50
Jet ...	39.99	26.50
Joseph of Darkness ...	19.99	13.50
Jinx ...	24.99	19.50
Joe Blade II ...	19.99	13.50
Kampruppe ...	29.99	22.50
King of Chicago ...	29.99	19.50
Lancelot ...	19.99	13.50
Leatherneck ...	19.99	13.50
Legend of the Sword ...	24.99	16.50
Major Motion ...	19.99	13.50
Mars Madness ...	19.99	13.50
Men 10 ...	24.99	17.50
Mega Pack ...	24.99	16.50
Mercede ...	19.99	13.50
Mini Golf ...	19.99	13.50
Mission Elevator ...	19.99	13.50
MoonMist ...	29.99	19.50
Mortville Manor ...	24.99	16.50
Munsters ...	19.99	13.50
Nebulas ...	19.99	13.50
Neverworld ...	19.99	13.50
Obliterator ...	24.99	16.50
Operation Wolf ...	24.99	16.50
Out Run ...	19.99	14.50
P.O.W. ...	24.99	19.50
Pac Maria ...	19.99	13.50
Pandora ...	19.99	13.50
Phantom Fighter ...	19.99	13.50
Pioneer Plague ...	24.99	16.50
Operation Wolf ...	24.99	16.50
Out Run ...	19.99	14.50
Powersplay ...	19.99	13.50
President is Missing ...	24.99	16.50
Quadrailen ...	24.99	16.50
Quantox ...	14.99	10.25
Question II ...	24.99	16.50
R.A.C. Lombard Rally ...	24.99	16.50
Reach for the Stars ...	24.99	17.50
Red October ...	24.99	16.50
Return of the Jedi ...	19.99	13.50
Return in Space ...	19.99	13.50
Return to Genesis ...	9.99	13.50
Revenge II ...	19.99	17.00
Roberay ...	19.99	13.50
Rock Challenge ...	24.99	16.50
Rocket Ranger ...	24.99	16.50
Rolling Thunder ...	24.99	19.50
Romantic Encounters ...	24.99	16.50
in the Dome ...	24.99	16.50
S.D.I. ...	24.99	19.50
Sargent Chess ...	19.99	13.50
Shadow Disc 11 ...	19.99	13.50
Scenery Disc Western Europe ...	19.99	13.50
Scenery Disc Japan ...	19.99	13.50
SeaStalker ...	24.99	19.50
Sentinel ...	19.99	13.50
Seven Cities of Gold ...	14.99	10.25
ShowGate ...	24.99	16.50
Skreams ...	19.99	16.50
Sleewinder ...	9.99	7.00
Silent Service ...	19.99	16.50
Smash Disc 10 ...	19.99	13.50
SoyFox II ...	24.99	17.50
Sorcery Plus ...	19.99	13.50
Space Racer ...	19.99	13.50
Star Fleet ...	24.99	16.50
Strike Force Harrier ...	24.99	16.50
Sub Battle Simulator ...	24.99	19.50
Super Six (Compilation) ...	24.99	16.50
Super Six (Part 1) ...	19.99	13.50
Super Six (Part 2) ...	19.99	13.50
Super Six (Part 3) ...	19.99	13.50
Super Six (Part 4) ...	19.99	13.50
Super Six (Part 5) ...	19.99	13.50
Spotting Image ...	19.99	13.50
Star Glider 2 ...	24.99	16.50
Star Wars ...	19.99	13.50
Star Fleet I ...	24.99	17.50
Star Trek ...	24.99	16.50
StarTrek ...	19.99	13.50
StarTrek II ...	19.99	13.50
StarTrek III ...	19.99	13.50
StarTrek IV ...	19.99	13.50
StarTrek V ...	19.99	13.50
StarTrek VI ...	19.99	13.50
StarTrek VII ...	19.99	13.50
StarTrek VIII ...	19.99	13.50
StarTrek IX ...	19.99	13.50
StarTrek X ...	19.99	13.50
StarTrek XI ...	19.99	13.50
StarTrek XII ...	19.99	13.50
StarTrek XIII ...	19.99	13.50
StarTrek XIV ...	19.99	13.50
StarTrek XV ...	19.99	13.50
StarTrek XVI ...	19.99	13.50
StarTrek XVII ...	19.99	13.50
StarTrek XVIII ...	19.99	13.50
StarTrek XVIX ...	19.99	13.50
StarTrek XX ...	19.99	13.50
StarTrek XXI ...	19.99	13.50
StarTrek XXII ...	19.99	13.50
StarTrek XXIII ...	19.99	13.50
StarTrek XXIV ...	19.99	13.50
StarTrek XXV ...	19.99	13.50
StarTrek XXVI ...	19.99	13.50
StarTrek XXVII ...	19.99	13.50
StarTrek XXVIII ...	19.99	13.50
StarTrek XXIX ...	19.99	13.50
StarTrek XXX ...	19.99	13.50
StarTrek XXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99	13.50
StarTrek XXXVIII ...	19.99	13.50
StarTrek XXXIX ...	19.99	13.50
StarTrek XXXX ...	19.99	13.50
StarTrek XXXXI ...	19.99	13.50
StarTrek XXXII ...	19.99	13.50
StarTrek XXXIII ...	19.99	13.50
StarTrek XXXIV ...	19.99	13.50
StarTrek XXXV ...	19.99	13.50
StarTrek XXXVI ...	19.99	13.50
StarTrek XXXVII ...	19.99</	

in the dos.h header file and, because it holds some very useful information, is worthy of special attention: First let us look at the layout . . .

```
struct FileInfoBlock {
    LONG fib_DiskKey;
    LONG fib_DirEntryType;
    char fib_FileName[108];
    LONG fib_Protection;
    LONG fib_EntryType;
    LONG fib_Size;
    LONG fib_NumBlocks;
    struct DateStamp fib_Date;
    char fib_Comment[116];
};
```

The 'fib_DirEntryType' field enables you to distinguish between a directory and a file. If fib_DirEntryType<0 then the information relates to a file, if fib_DirEntryType>0 then we have been given information about a directory. Although the filename has a current maximum of 30 characters the extra space in the structure may be used by AmigaDOS at a later date — so it is best NOT to regard the extra space as being available for your own use. The fib_Protection field is currently only 'partly implemented' — the lower four bits of the mask have been defined for some time and now bit 4 itself has been designated as an 'archive' bit (cleared whenever a file which has been written is closed or a directory updated).

archive bit.....bit 4
reads.....not allowed if bit 3 is set
writes.....not allowed if bit 2 is set
execution.....not allowed if bit 1 is set
deletion.....not allowed if bit 0 is set

Standard names for the 'protection' flags are provided in the header files but, since the current release of AmigaDOS only checks for the deletion bit, you will only really need to worry about the FIBF DELETE flag — a bit mask corresponding a bit 0 being set.

You do, incidentally, have to be careful when you set up a FileInfoBlock structure because it MUST be long word aligned. The standard approach is to use allocMem() to allocate the memory like this:

```
Edefine FILEBLOCKSIZE = (LONG)
    (sizeof (struct FileInfoBlock))
info_block_p = (struct FileInfoBlock *)
    AllocMem
    (FILEBLOCKSIZE, MEMF_
```

The Examine() routine itself takes the following form:

```
Boolean success/fail = Examine (file_
lock_p, file_info_p)
```

To use the Examine() function you provide the pointers to both the file lock and a FileInfoBlock structure. Examine() attempts to fill your info

As a rule, when a AmigaDOS function fails you can get additional information about the cause of the failure by calling a routine called IoErr(). The format of the call is straightforward . . .

```
error = IoErr()
```

When we get a 'lock' on a particular directory we effectively obtain access to a particular 'node' of the selected file/directory tree. Examine() and ExNext() provides us with the means of identifying the components of that node, i.e. of identifying both the files present and any further directories present. To illustrate the type of code you would use to search such a 'node' I have written a short CLI based program which obtains a shared read lock on a directory, allocates the necessary FileInfoBlock memory, and then use Examine() and ExNext() to step through the entries that are present. It uses the fib_DirEntryType to decide whether an entry is a file or a directory and prints its name followed by (file) or (dir) respectively.

Locks must be always removed before a program terminates otherwise AmigaDOS will never realize you have finished with the file. The routine which does this is called UnLock() — it is an easy routine to use as you will see from the program.

The complete list of the error codes which are returned are available in the dos.h header file, but here are the most useful ones . . .

#define	ERROR_No_DEFAULT_DIR	201
#define	ERROR_OBJECT_IN_USE	202
#define	ERROR_DIR_NOT_FOUND	204
#define	ERROR_INVALID_LOCK	211
#define	ERROR_DISK_NOT_VALIDATED	213
#define	ERROR_DISK_WRITE_PROTECTED	214
#define	ERROR_DIRECTORY_NOT_EMPTY	216
#define	ERROR_TOO_MANY_LEVELS	217
#define	ERROR_DEVICE_NOT_MOUNTED	218
#define	ERROR_SEEK_ERROR	219
#define	ERROR_DISK_FULL	221
#define	ERROR_DELETE_PROTECTED	222
#define	ERROR_WRITE_PROTECTED	223
#define	ERROR_READ_PROTECTED	224
#define	ERROR_NOT_A_DOS_DISK	225
#define	ERROR_NO_DISK	226
#define	ERROR_NO_MORE_ENTRIES	232

Editorial Note: Workbench 1.3

Last month we announced the release of Workbench 1.3 in the UK. We will review the Enhancer Software package, including AmigaDOS V1.3, Kickstart V1.3, Workbench V1.3, and Extras in the next issue of AUI. For more information, contact Commodore Business Machines (UK), Ltd, Commodore House, The Switchback, Garden Road, Maidenhead, Berks SL67XA Tel.(0628) 770088.

continued from page 54

```
/*
 * AMIGA DOS DIRECTORY SEARCH - CLI BASE EXAMPLE
 */
/*----- */

#define FIB_SIZE          (LONG)(sizeof(struct fileInfoBlock))

#include <exec/types.h>
#include <libraries/dos.h>
#include <libraries/dosextens.h>
#include <exec/memory.h>

main()
{
    char name [300];
    struct FileLock *CurrentLock_p, *Lock();
    struct fileInfoBlock *FIB_p;
    BOOL still_more_data;

    printf("Device: path filename : ");
    scanf("%s",name); /* Input the name of the file or directory */

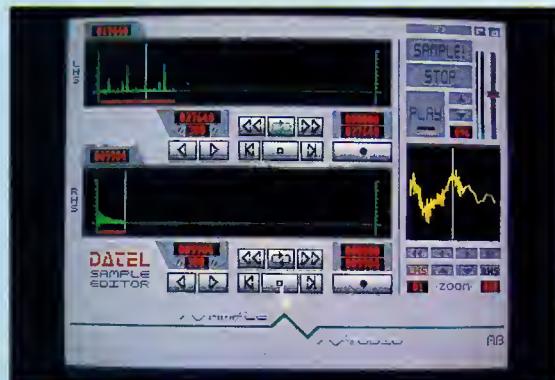
    if(CurrentLock_p=Lock(name,ACCESS_READ))
    {
        if(FIB_p=(struct fileInfoBlock *)AllocMem(FIB_SIZE,HEMF_FILE))
        {
            if(Examine(CurrentLock_p,FIB_p))
            {
                if(FIB_p->fib_DirEntryType)
                { /* Unique file reference found */
                    printf("%s\n",FIB_p->fib_FileName);
                }
                else /* Nonunique reference found */
                {
                    printf("%s\n", (dir));
                }
            }
            still_more_data=ExNext(CurrentLock_p,FIB_p);

            } while(still_more_data);
        }

        FreeMem(FIB_p,FIB_SIZE);
    }
    UnLock(CurrentLock_p);
}
exit(TRUE);
*/

```


DATEL ELECTRONICS



AMIGA PRO SAMPLER STUDIO + DATEL JAMMER

- A top quality sound sampling system at a realistic price.
- 100% machine code software for realistic functions.
- HiRes sample editing.
- Realtime frequency display.
- Realtime level meters.
- Files saved in IFF format.
- Adjustable manual/automatic record trig level.

ONLY £69.99 PLEASE STATE A500/1000/2000



MIDIMASTER

- Full Midi Interface for A500/1000/2000 (please state model).
- Compatible with most leading Midi packages (including D/Music).
- Midi In - Midi Out x3 - Midi Thru.
- Fully Opto Isolated.
- No need to pay more - Full Midi standard.

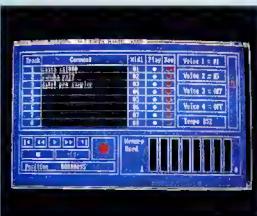
ONLY £34.99

**SPECIAL OFFER!!
BUY THE MIDIMASTER &
THE MIDI MUSIC
MANAGER TOGETHER FOR
ONLY £59.99**

PRINTER LEADS

- 25 pin D' to 38 way Centronics parallel lead. 1.2m length.
- A500 or 1000, please state.

ONLY £8.99



MIDI MUSIC

MANAGER

A TRULY PROFESSIONAL MIDI PACKAGE AT A REALISTIC PRICE

- Play sampled sounds on Amiga from any Midi track.
- Full dubbing - listen to one track while recording another.
- Works with many Midi interfaces including Datel Midi Master (see Ad)
- 8 realtime Midi tracks for record/playback.
- Adjustable track length - limited only by available memory.
- Works with standard IFF files.

ONLY £39.99

MIDI CABLES

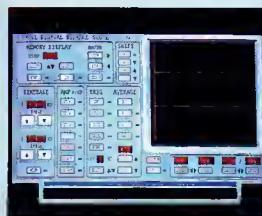
- Top quality.
- 3 metre length.

**ONLY £6.99 PAIR
UNBEATABLE VALUE**

To complement the Sample Studio the Datel Jammer gives you a 5 octave keyboard to play & record your sampled

FEATURES:-

- 4 track sequencer up to 9999 events.
- Tempo & Beat controls.
- Mixer Controls on Instruments.
- Load & Save sequence.
- Works on standard IFF file sounds.



DATA ACQUISITION UNIT

- Turn your Amiga into a sophisticated measuring instrument capable of measuring a wide range of data inputs.
- Sample & display events from microseconds to hours - with amplitudes from millivolts to 50 volts.
- A Hardware/Software package with very high spec. including:- DIGITAL SCOPE DISPLAY - 2 channel inputs. Manual or continuous display. Timebase 500ms/div to 20us/div - accurate to 5%.
- 8 bit flash conversion gives 2 million samples/sec.
- PLOTTER DISPLAY
- Timebase range 1 sec to 10hrs per plot.

All features found on units costing thousands of pounds.

ONLY £99.99

PLEASE STATE A500/1000/2000



LOGIC ANALYZER

- At last a logic analyzer at a realistic price for the Amiga computer.
- The Datel Logic Analyzer gives you many of the features found in instruments costing thousands of pounds.
- Data in Hex, Decimal, Binary, Octal & Ascii.
- Buffered inputs, CMOS & TTL compatible.
- Specifications include 8 channel input, 8K memory, external trig, internal 10MHz crystal clock, 8 ranges from 20-S to 100-S, search facilities & word trigger.
- Load & save facilities.
- Complete with pod.

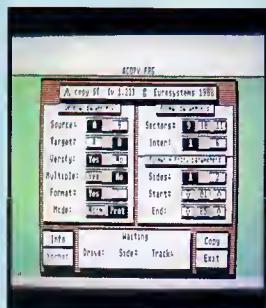
ONLY £99.99

DEEP SCAN BURST NIBBLER

- Copy an entire disk in under 80 seconds.
- Works with one drive or two.
- Multiple copy option allows you to make many copies from one original.
- Copy 1 or 2 disk sides - up to 85 tracks.
- Full verify option.

- Compatible with A500/1000/2000.
- Easy to use icon driven programme takes the mystery out of disk backup.
- Special format parameters for non-standard formats.

ONLY £29.99



NOTICE 1988 COPYRIGHT ACT

DATEL ELECTRONICS Ltd. neither authorizes nor condones the use of its products to reproduce copyright material. It is illegal to make copies of such material without the expressed consent of the copyright owners or their licensees.

DATEL ELECTRONICS

EXTERNAL 3.5" DISC DRIVE

- Slimline extra low profile unit - only 6" long!
- Top quality drive mechanism.
- Throughport allows daisy-chaining other drives.
- A superbly styled case finished in Amiga colours.
- Fully compatible.
- 1 meg unformatted capacity.
- Good length cable for positioning on your desk etc.

ONLY £149.99 TWIN DRIVE

ADD £5 FOR COURIER DELIVERY IF REQUIRED

EXTERNAL DRIVE SWITCH

- Switch in/out of external drives.
- Save on memory allocated for drives not currently in use.



- DF1 & DF2 controlled.
- Fits between computer & driver(s).

ONLY £9.99



STEREO BOOSTER SYSTEM

- Boost the output of your Amiga in glorious stereo.
- 30W + 30W power amplifier.
- 5 band graphic equalizer.
- Complete with casings for A500/A1000/A2000 models.
- Slimline colour matched metal case with built-in mains power unit.
- Headphone socket.

ONLY £59.99



MATCHING SPEAKERS

- High quality miniature 3 way speaker units in die-cast aluminium shelf enclosures.
- 30 Watts 6 ohm each.

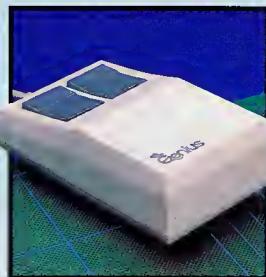
ONLY £39.99 PAIR



LOW COST BAR CODE READER

- Low price Bar Code Reader.
- Model 420, high performance, low cost Bar Code Reader.
- Works with any Amiga/ST computer system (please state which) via the RS232 interface.
- Features a built-in self-testing function.
- Features a diagnostic indicator.
- Can read codes EAN, UPC, Interleaved 2 of 5, Code 39, CODABAR.
- Comes complete with wand, ready to go.
- Easy to install.

ONLY £189.99



REPLACEMENT MOUSE

- High quality direct replacement for mouse on the Amiga.
- Teflon glides for smoother movement.
- Rubber coated ball for minimum slip.
- Optical system counting - 800/mm.

Special offer - free mouse mat + mouse house (worth £7.99).

**ONLY £29.99
COMPLETE**



512K RAM EXTENSION CARD

- Available with/without calendar/clock option.
- Simply plugs internally into A500 slot.
- Switch in/out with switch supplied.
- Fitted in minutes - no soldering etc.
- Accepts 41256 DRams (zero K fitted).
- With calendar/clock onboard time/date automatically booted.
- Battery hacked to retain time/date.

**ONLY £19.99
FOR STANDARD CARD TO
ACCEPT 512K**

**ONLY £34.99
FOR VERSION WITH CLOCK/
CALENDAR**

NB THESE PRICES ARE FOR BOARDS WITHOUT RAM CHIPS. PHONE 0782 744707 FOR RAM PRICES.
PHONE FOR LATEST FULLY POPULATED BOARD/RAM PRICES.



GENISCAN GS4000 AMIGA

- An easy to handle Handy Scanner featuring 105 mm scanning width & 200 dpi resolution enables you to reproduce graphics & text on your computer screen.
- Adjustable switches for brightness & contrast.
- A powerful partner for Desk Top Publishing.
- With Geniscan you have the ability to easily scan images, text & graphics into the AMIGA.
- Powerful software allows for cut & paste editing of images etc.
- Save images in suitable format for most leading packages including DELUXE PAINT etc.
- Printout for Epson compatibles.
- Package includes GS4000 scanner, interface & Scan Edit software.
- Unmatched range of edit/capture facilities simply not offered by other scanners at this unbeatable price.

**SPECIAL OFFER
COMPLETE WITH DELUXE PAINT II &
DELUXE PRINT FOR ONLY £189.99
INCLUDING HARDWARE/SOFTWARE**



ALL ORDERS NORMALLY DESPATCHED WITHIN 48 HRS

HOW TO ORDER ...

BY PHONE

0782 744707
24 hr Credit Card Line

BY POST

Send cheques/POs made payable to "Datel Electronics"

FAX

0782 744292
UK ORDERS POST FREE
EUROPE ADD £1
OVERSEAS ADD £3

PRICES AND SPECIFICATIONS CORRECT AT TIME OF PRESS
AND SUBJECT TO CHANGE WITHOUT NOTICE

CALLERS WELCOME - Please reserve goods by telephone prior to visit.

**DATEL
ELECTRONICS**

DATEL ELECTRONICS LTD., FENTON INDUSTRIAL ESTATE
GOVAN ROAD, FENTON, STOKE-ON-TRENT, ENGLAND.

SALES ONLY
0782 744707

TECHNICAL ONLY
0782 744324

AMIGA USER

INTERNATIONAL

Incorporating Commodore Business Magazine.

£1.95
USA \$4.50

FEBRUARY 1990

THE AMIGA
-IN THE
DRIVING SEAT
SUPERBACK!
KINDWORDS II
WORLD OF
CRM



SUBSCRIBE!

You can keep up to date with everything that's happening on the AMIGA scene by taking out a subscription to Commodore AMIGA User International. This new and unique international magazine is now published every month and will be mailed to you direct. Simply fill out the coupon for this special introductory offer, and send it to us now.

Please make cheques payable to: CROFTWARD LTD

To: Subscriptions Manager, AMIGA User International
120-126 Lavender Ave, Mitcham, Surrey CR4 3HP.
Please send me 12 issues of AMIGA User International.

Subscription rate U.K. £23.00

Europe £32.00

Outside Europe £46.00 Airmail

Date subscription to commence

Name

Address

County

Telephone (home)

Postcode

Expiry date

Signature

Cheque enclosed

Please debit my Access Card No.



PLUS
SPECIAL READERS'
OFFERS!



02

0 74470 12129 9

Electronic Diary

Casio

Mark Smiddy took a innovative new electronic device out for a test drive and came back with some amazing revelations...

Diaries have been kept for centuries but when someone decided to market the idea with a fashionable modern-sounding name, like Filofax, the yuppies went wild convinced it was something new. Very soon though, many people find themselves lumbered with an expensive pile of paper containing scribbled notes and ill-coordinated facts.

Now at last the problem has been solved - in beautiful style. Casio's new IF-8000 retains all of the features essential in the modern day electronic diary - coupled to a pressure sensitive display! This remarkable piece of electronic wizardry has all of the benefits of a normal organiser - but can be drawn or written on, just like a piece of paper.

This frees you from resorting to easily lost scraps of paper or not having a pad close at hand to make notes on. All this in a case about the size of an ordinary pocket calculator. The really clever bit is Casio have incorporated a full keypad into the case itself so when folded, the whole thing fits neatly and unobtrusively inside a jacket or even shirt pocket - just try doing that with an Organiser II; possible but potentially uncomfortable (even gerous!) / or a filofax

Before I continue to extol the benefits of this wonderful gadget - a word about what it will not do. It is not a Hand Character Recognition system or HCR. That is, what you write is what you see - your handwriting is not converted into typed text.

What it will do on the other hand, is store anything which you can draw - within reason - with the special, pen-like, stylus supplied. This means small street maps, diagrams, even doodles. With this unit you need never get lost again; which blows another excuse for being late for those important meetings. Each drawing can be made up of up to four screens - organised like a large square - and up to 50 screens can be stored at once.

The ability to be able to draw directly onto the screen is not a lot of use - unless you can tie it to some plausible explanation.

The dairy is split into four distinct sections: Telephone book, Memo pad, Schedule and Calender. The last two being further tied together just to confuse the issue initially. In addition, there is a simple though useful calculator.

Possibly the most often used feature of diaries is to store people's telephone numbers. With the IF-8000, it is very simple. Pressing the telephone pad switches the unit into telephone mode: Now by selecting the input mode peoples names and numbers can be input as normal. The advantage is the names are stored alphabetically and can be got at very simply,

Simply press the first couple of letters of the name to be searched for, press the telephone button and as if by magic, the information appears. Gently touching the screen where the name is printed brings up the specifics. In this way you only have to search for say one or two letters rather than a whole name. This is a lot easier than searching a Filofax type organiser.

The next most important feature is the Memo. This is used very much like a real memo pad. Items of data are given a headline; the first line of text then any other specific information like a simple sketch or map. When you want to get the information back the unit simply displays the list of headlines. Tap the screen at the one you want and it is displayed immediately. Similarly if you have a lot of pages you can search for a specific one.

Possibly the most versatile feature of the IF-8000 is its Calender/Schedule. The calendar supplies one of those which extends way beyond the year 2000 and can supply information as a full month, one (numbered) week within a month or a complete day. For executives and any other busy person

this is a real must. These pages work in a similar manner to the memo pad with one important difference - they are keyed on times and dates.

Say you have a meeting at three o'clock on 15-2-89. All you have to do is use the calendar to select the appropriate date first find the month then tap on the required date. This is then displayed in the schedule format ready to input the time and details. The Clever bit is when you enter any data at a specific day, the calendar automatically highlights it on the full month display.

All of the major functions have full editing and search facilities. It is even possible to edit and change the existing data without having to re-type the whole lot. And if you do decide to clear part of the machine to free, up some memory it even has a menu driven reset and self-calibration routine.

Rarely have I seen such a remarkable piece of innovation as this. Casio have taken some very simple ideas, combined them with existing technology and presented a very professional piece of equipment. My only real concern is for the spine on the case. This feels very pliable - it has to be to carry the multitudinous connector to the main system - but years of constant use could possibly see it suffer.

All the same, I personally own a Casio watch and calculator, both of which have given me years of trouble-free service and had little care or respect in return. There is only one word suitable for this unit - (superlative!)

Model: Casio IF-8000
Display: 6144 pixel LCD organised as 16 columns by 8 lines
Memory: 15,328 characters or 50 pages

Battery life: Apx. 100 hours continuous - Plus 2 year memory backup
Dimensions: MM: 12.5H 07 193W 07 150D (Fully open)
14.0H 07 92W 07 150D (Folded)
Weight: 200 (7.10Z)

Product: Digital Diary

Positive points:
Graphics ability, very easy to use, large keys, clear display.
Drawbacks: Non-QWERTY keyboard, no real-time clock or capitals lock, fixed memory.
Contact: See special offer on page 48.

Computing Horizons

Daphne Moss looks at a book that examines some of the more extraordinary computer concepts of modern times and whether they lived up to their promise.

In last December's issue of C.G.I. Managing Editor Antony Jacobson wrote that 'There is a rapidly changing computer picture. Both in the home and in business, all over the world, there are almost daily events that can reverberate right around the globe, often in unexpected ways'. The truth of his words can be seen in an engrossing new book 'Computing Horizons'.

This is a collection of Durham's own articles that were originally published in a weekly general computing magazine from 1983 to 1985 and the author has added his comments on the progress — or otherwise — that has been made on the various subjects since their publication. Some of the obvious strides that have been made in computing since the articles were written were foretold at the time. Some of the more embryonic and imaginative ideas have been lost either through lack of support, monetary or otherwise, or because they did not prove feasible.

For example, in September 1984, research was being done at Leicester Polytechnic on SYNICS. This was a 'Front-ending' toolkit being developed by the Polytechnic's Human-Computer Interface Research Unit.

'Front ends' are the human-user interfaces of software which enable the users to configure the software to their own personal taste. Leicester was concentrating on developing front ends and would perhaps, eventually, have come up with a new computer language. Unfortunately, the experiments foundered when Ernest

Edmonds and his Unit moved from the Polytechnic. The research then continued at Loughborough University.

Tony Durham does not actually go into the reason for the transfer but it was presumably because funding at Leicester was either inadequate or running dry. He does say though, and I feel it is a valid point, that 'Good research can certainly begin at a polytechnic. It is sad when it cannot continue there.' Polytechnics are the 'poor relations' of the U.K. further education system, a state of affairs which clearly needs to be remedied.

Another research program which was being developed in 1985 and would, and indeed still may, be of benefit to mankind is called TUTOR. Developed by LOGICA, then under contract to the British Ministry of Defence, this is an example of a project which uses Artificial Intelligence techniques.

A tutor is just what it is. A system which can 'provide inconspicuous and sensitive help to a human being undertaking an important task — learning'. It can also provide a so-called 'mixed initiative dialogue' which closely resembles that which takes place between a human tutor and a student, which is one of the things missing — or was in 1985 — in conventional computer-aided instructions.

One of the applications for which it was meant to be used was to instruct air traffic controllers on the rules of flight safety regulations which they have to observe, but on a more sophisticated and yet easier to learn

level than was then in general use. Again, it was a program that foundered. This time not through lack of funds or facilities but because, and this seems an incredibly short-sighted and stupid policy, no military instructor was available to supply expert knowledge of the subject.

Since that article was written, three years ago, air traffic controllers have had an increasingly difficult and arduous job to perform. 'Near misses' between aircraft are being recorded with alarming regularity and many of these are almost certainly a direct result of human error. TUTOR might have been instrumental in preventing at least some of the mistakes.

What is interesting, though, is that TUTOR itself has not been lost altogether. It will be employed in a £6,750,000 effort to apply knowledge based systems to the Department of Health and Social Security.

Tony Durham's book gives an insight into the way that the creative processes behind the computer industry were seen just a few years ago and the way in which they have actually developed. The articles cover the work and ideas of many of Europe's and America's most influential computer scientists.

Looking at anything with hindsight is a fascinating occupation. Given the giant leaps that are happening every year in the computer business, the progress achieved makes this book a highly interesting even necessary addition to anyone's computer archives.

D.M.

Price: £13.95



PRINTERS

All prices include VAT/delivery & cable



star

We use and recommend Star printers since they offer an unbeatable combination of features, print quality, reliability and value. Make the sensible decision - get it right with a Star printer at our special, all in, prices.

All prices include VAT/delivery

SPECIAL OFFER AMIGA PACK

Our new special offer pack includes the following:

- ★ Amiga 500 computer
- ★ TV Modulator
- ★ Mouse & Mouse mat
- ★ Joystick
- ★ Photon Paint
- ★ Karate Kid II
- ★ Grid Start
- ★ Goldrunner
- ★ Demolition
- ★ XR 35
- ★ Atax
- ★ Las Vegas
- ★ plus 5 disks of public domain s/ware

The total retail value of extras supplied is £270.45.

All this for only £399.00 !

Philips CM8833 colour monitor suitable for Amiga 500	£229.00
Philips CM8852 monitor as above, but higher resolution	£229.00
Philips TV Tuner AV7300, use with any composite monitors	£79.00
Cameron Handy Scanner Type 4, 64mm wide, scans up to 400dpi with 16 grey scales, inc. Paint & OCR software	£229.00
A501 RAM/clock expansion	£119.00
Word Perfect	£149.95
Superbase Personal	£69.00
Superbase Professional	£179.95
Logistix	£79.95
A500 Dust Cover	£4.95

3.5" EXTERNAL DRIVES using Citizen drive mechanisms



- Suits Amiga 500 or Amiga 1000
- Top quality Citizen drive mechanism
- On / Off switch on rear of drive
- Throughport connector
- One megabyte unformatted capacity
- Slimline design
- Very quiet
- Long cable for location either side of computer
- Full 12 months guarantee

Ultra low price!
£79.95
inc.VAT and delivery

DOUBLE TAKE! PYE 15" FST TV/MONITOR (MODEL 1185)

Superb quality, stylish medium resolution FST colour TV/monitor to suit the Amiga or Atari ST. Features teletext, full infra-red remote control, Euroconnector, Video/Audio input and headphone output connectors, 40 tuner presets, external power connector and a loop aerial. Supplied with cable (please state computer type when ordering).

SPECIAL OFFER !
£269.00

Includes VAT and computer connection lead

Cumana 5.25" External Floppy Disk Drives

(model CAS 1000 S)

We are now supplying whisper quiet slimline 5.25" floppy drives for the Amiga user from Cumana. The 'Transformer' compatible drive features an integral power supply, 40/80 track switching, 360/720K formatted storage capacity and throughport connector. It also has an on/off switch which effectively unplugs the drive from the Amiga when it is not required.

Only £159.95

Project D
disk backup utility

Only £34.95
inc.VAT/delivery

Probably the best and most complete 3.5" disk copier for the Amiga user. Can even copy MS-DOS, Atari ST, CP/M, Xenix and Archimedes disks. Because of the high specification of the Amiga drive, this copier is probably the best for the Archimedes or ST. Also includes track editor. Updates will be available in the future as and when new software protection schemes arise.

3.5" Disks

10 Bulk packed OS/DOS 3.5" disks with labels, fully guaranteed	£11.95
25 bulk disks as above	£27.95
10 disks as above with plastic case	£13.95
25 disks as above, with 40 capacity lockable storage unit	£34.95
Verbatim OS/DOS disks, top quality media with lifetime guarantee. Box of 10 only	£19.95
SKC MF200 OS/00 3.5" disks. Box of 10	£17.95

How to order from Evesham Micros

Phone us with your ACCESS or VISA card details on :
0386-765500

All prices include VAT and delivery. Next day delivery £5.00 extra.

Send cheque, Postal Order or ACCESS/VISA card details

Evesham Micros Ltd
63 BRIDGE STREET
EVEHAM
WORCS WR11 4SF
0386-765500
fax 0386-765354
telex 333294

Govt., educ. & PLC orders welcome
Same day despatch whenever possible
All goods subject to availability, E&OE.
Open to callers 6 days, 9.30-5.30

Also at: 1762 Pershore Rd., Cotteridge, Birmingham B30 3BH Tel: 021 458 4564

Amiga Programming

- The Choice

Susan Maxwell 'C's' the future for the budding Amiga programmer.

PROGRAMMING the Amiga is a challenge — it is not something that can be learnt overnight, nor is it a subject to be recommended for those who are afraid of a bit of hard work. But as far as home and small business computers go, the Amiga is in a class of its own. Everybody who perseveres for the first year or so ends up becoming totally and utterly hooked on the machine.

Which language should you use? Well, if you are new to the Amiga then it's probably best to stick with C. Don't let anyone kid you . . . you MUST become fluent with C to make any headway with the Amiga and there are no exceptions to this. Every significant Amiga manual and reference book which has been written to date assumes that the reader is a competent C programmer. The C compilers available at the moment are expensive but we, like everybody else, are hoping that very soon a 'cheap C compiler' will be made available so that everyone can jump on the C bandwagon. If you think I am hardcore C programmer let me tell you I am most definitely NOT, but . . . I am a realist and the reality of the situation is that trying to program the Amiga without a knowledge of C is like trying to ride a bicycle without any wheels!

Basic on the Amiga is the language with which most newcomers will be most comfortable and it has the advantage that it

comes free with the machine. Amiga Basic is actually quite good, is upwardly compatible with previous versions of Microsoft Basic and it has some useful 'enhancements' but . . . it suffers from the usual interpreted language slowness. Use it by all means but, if you want to make the most of its Amiga type facilities, you will find that you will need information that is only available in those 'C oriented' technical manuals.

"To be honest once a problem has been split up into reasonably manageable parts I don't really think it matters which language you use."

My language preferences? It usually depends on what I'm doing — and how much time I have. I often use assembly language simply because it's good fun . . . to be honest once a problem has been split up into reasonably manageable parts I don't really think it matters which language you use. Don't think you must use assembly language to be a 'real' Amiga programmer — it's not true and, just to put things into perspective, I will let you into a secret . . . Very often when you translate complicated looking assembly language code back into

its high level equivalent — you quite frequently find that the low level programmer has written 'dodgy code' and got away with murder just because no one has realized. Assembly language is fast but it's difficult to read and this often hides a multitude of sins.

So if you want to program the Amiga where should you start? This is a difficult question to answer because you will probably have to tackle several areas at once — there is a large amount of technical material concerning C, Intuition, AmigaDOS etc., that must be grasped before any headway can be made with actual programming. You should not expect magazines to teach you too much about the C language — there just is not the time and space available — but we can help by covering difficult areas and by explaining about the Amiga specific stuff that you will not find in the textbooks. We can show you what we have learnt ourselves, and pass on tips that we have learnt from others — but that will still leave plenty for you to do.

It may take six months to a year before you are happy with the technical manuals and during this time you will come across all sorts of areas which are not fully explained in your available reference books. When you come across a snag it's usually due to one of two things . . . either you don't have the right technical information available, or you are misinterpreting the information that you do have. These are both areas where A.U.I. can, and will, try to help. We have got quite an assortment of Amiga experts available and, as always, you have an open invitation to pick our brains — quite simply all you have to do is ask!

S.M.

Tel: (0703) 332225

COMMODORE PC 1 SPECIALS

OFFER CCI 1
CUMANA CAS 354
AMIGA DRIVE
OWN P.S.U.
£99 INC. VAT

OFFER CCI 2
COMMODORE PC 1
HIGH RES MONO
ABLE-1 SOFTWARE
£325 INC VAT

OFFER CCI 3
COMMODORE PC 1
C.G.A. COLOUR MON
ABLE-1 S/W
£459 INC VAT

OFFER CCI 4
PHONE FOR
CATALOGUE
ON MEGASOFT
SOFTWARE CLUB

OFFER CCI 5
STAR LC 10
£195 INC VAT

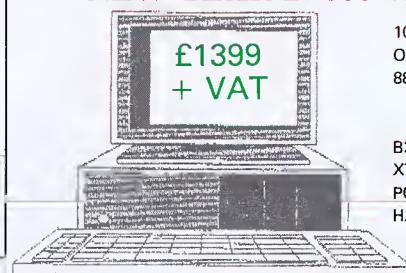
OFFER CCI 6
EPSON LX 800
SPECIAL LOW PRICE
£149 PLUS VAT

OFFER CCI 7
PHILIPS 8833 MONITOR
£239 INC VAT

DRAGONS LAIR
FOR AMIGA
£ PHONE

NEW YEAR PACK 1
AMIGA A500
PHOTON PAINT PD DISKS
SKYFIGHTER PLATOON
LASVEGAS WIZBALL
DEMOLITION T.V. MODULATOR
GRID START GOLDRUNNER
KARATE KID II JOYSTICK
£389 INC VAT

NEW YEAR B2000 PACK



10843
OR
8833 MONITOR

B2000
XT B/BOARD
PC CONTROLLER
HARD DISK DRIVE

NEW YEAR PACK 3
AMIGA 500
PHOTON PAINT QUADRALLIEN
ELIMINATOR WIZBALL
PLATOON BUBBLE BOBBLE
CAPTAIN BLOOD STAR GOOSE
SPITTING IMAGE INT SOCCER
BETTER DEAD THAN ALIEN
STRIKE FORCE HARRIER
WINTER OLYMPIAD JOYSTICK
T.V. MODULATOR
£399 INC VAT

NEW YEAR PACK 2
AMIGA A 500
PHOTON PAINT AMEGAS
INSANITY FLIGHT TERRORPODS
ART OF CHESS THUNDERCATS
MERCENARY COMP WIZBALL
SANDMAN ULTRA WARRIOR
BUGGY BOY IKARI WARRIORS
T.V. MODULATOR
£379 INC VAT

AMIGA B 2000

B 2000 £839 + VAT	8 MB RAM/B £499+ VAT
XT B/BOARD £399 + VAT	XT B/BOARD £399+ INT GENLOCK £179+
20 MB HARD/D £199+ 2nd DRIVE 3½" £75+	AT B/BOARD (IN STOCK) £745
PHILIPS 8833 £199+ VISION V4200 £169+	

NEW YEAR PACK 4
AMIGA A500
CARRIER COMMAND WIZBALL
PHOTON PAINT PLATOON
KARATE KID II GOLDRUNNER
AEGIS SONIX PD DISKS
JOYSTICK T.V. MODULATOR
£399 INC VAT

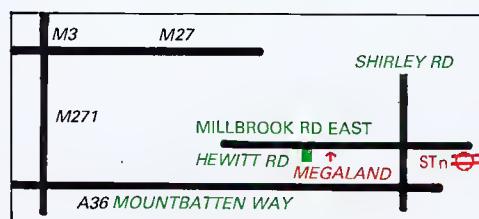
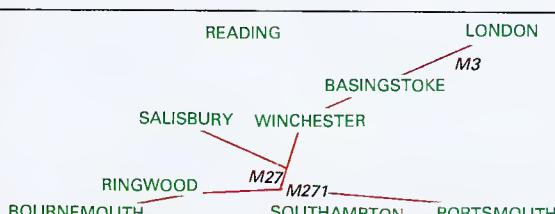
OFFER CCI 8
STAR LC 10 COMMODORE
£159 INC VAT
STAR LC 10 COL COMMODORE
£199 INC VAT

NEW YEAR PACK 5
AMIGA A500—T.V. MODULATOR—JOY STICK—INTERCEPTOR—LEATHERNECK
GOLDRUNNER—KARATE KID II—MOUSE MAT—AMIGA TUTORIAL DISK—MANUALS
MOUSE—10 CBM DISKS—DISK CLEANER
£389 INC VAT

OFFER CCI 9
C64 1581
3½" D/DRIVE
£149 INC

EXCLUSIVE MEGALAND MONITOR OFFER

FOR A LIMITED PERIOD WHEN YOU ORDER YOUR AMIGA YOU CAN PURCHASE A PHILIPS 8833 STEREO MONITOR FOR ONLY £199 INC VAT OR A VISION V4200 (MADE BY PHILIPS) COLOUR MONITOR £179 INC (SIMILAR TO COMMODORE 1084)



APPROACH VIA M3 TAKE M271 TOWARDS TOWN, TURN LEFT ONTO MOUNTBATTEN WAY, BEFORE STATION TURN LEFT TOWARDS SHIRLEY AFTER 50 yds LEFT INTO MILLBROOK RD MEGALAND IS 250yds ON THE LEFT, 3 MINS WALK FROM STATION.

**M
E
G
A
L
A
N
D**

California Games

Epyx



"The idea is to juggle the small beanbag using only your feet, knees and head, putting together a string of varied combinations of moves for maximum points."



A little over a year ago Epyx released the most original and playable installment in their 'Games' series *California Games*. After a long wait the Amiga version has finally turned up, but is it all it should be?

California Games abandons the fiercely competitive Olympic approach and instead gives us a taste of some of California's favourite pastimes. In the familiar Epyx fashion, each of the six events (half pipe, footbag, surfing, roller skating BMX and flying disk) can be practiced or competed in by up to eight players.

Half pipe skateboarding is played inside a time limit of one and a half minutes. In this time you have to perform as many kickturns, handplates and ariels as possible without wiping out more than twice. Timing is all important here; kickturns are fairly easy to pull off but hand plants require a very precise pump on the fire button. I was disappointed to see the main sprite moving so jerkily around the screen which takes a lot away from an otherwise enjoyable event.





"As the screen scrolls to keep the frisbee in view you can line up the catcher with the help of the scanner"

You might think the potential for a game based around a footbag (or hacky sack) would be limited. In fact it has come out surprisingly well. The bendy sprite and wide array of tricks add to the fun.

For the next event, surfing, you are supplied with a perfect wave, breaking evenly from left to right. Your controls are straight-forward, just lean the stick left or right to turn the board, holding down the fire button for a tighter turn. Tube rides are possible but can be tricky to exit without wiping out. Impress your friends by gliding off the top of the wave, adjusting to the optimum angle and catching the surf on the way down! The original C64 surfer was (and still is) one of the best sprites ever seen on the machine. Sadly the Amiga graphics are much weaker, the board even changes shape as you turn! It has also lost most of its realism which is a great shame.

Roller skating is a simple right to left scrolling obstacle course. Steps, discarded ice creams, sandy patches and litter can be dodged or jump over. If you are feeling adventurous you can always throw in a few spins for extra points. The controls can be a little awkward but otherwise it is enjoyable.

Similar to the roller skating in its scrolling obstacle course format, the BMX is far more

interesting. In this solo race across numerous humps and ramps, your rider can be persuaded to perform 360s and forward and backward somersaults. Make a bad landing and you'll get another couple of chances, but end up on your head and it's curtains. This otherwise fun event is let down a little by dicey collision detection.

In the flying disk (frisbee to you and me) you get to control both the thrower and the catcher. A Leaderboard-style power and angle meter determines the length of the throw. Three different catch styles earn varying scores that are added to the distance of the throw. A bit easy but good fun all the same.

In its C64 form California Games is one of my all time favourites, so the inferior Amiga version is disappointing. In places the sound has been improved very slightly, and the flying disk looks a lot brighter, but apart from that nothing much has changed for the better. The half pipe and surfing don't play nearly as well. Fortunately the diversity of the events save it to some degree but anyone with a 64 would be well advised to track it down in its original format.

Graphics: 6
Sound: 6
Playability: 6
Value: 6
Price: £19.99

Action Service

Infogrames



Feeling fit? Like to give yourself a bit of physical torture? If so you just might be ready to take on Infogrames latest release, Action Service. It's time for you to prove yourself as a real man and take up the challenge to become part of the famous (?) Cobra Command team. Four punishing courses await you each one requiring different skills.

The playing area is made up of eight small screens (2 by 4) which combined, give the effect of just one large screen. You can control your soldier with joystick or keyboard, as the screen scrolls from right to left. At the bottom of the screen(s) is the control panel. Here you will find a mock video cassette recorder which allows you to record your last game and then play back the tape to see how well you did or didn't do. It also helps you to see your mistakes and improve on them if you made any.

Your objective is to reach the end of each course, tackling various obstacles depending on which stage you are on. The physical route is first. On this you must leap over walls, scramble under tunnels of barbed wire and jump over anything that may trip you up. If you can just manage to drag yourself past the finishing post you can then go onto the second route. The main difference here, is that you have to be cautious of bombs and grenades while trying to get out of Rex's way (a well disciplined and strong dog).

The third course has you fighting off your opponents in a bare knuckle brawl, then avoiding the occasional shower of rubber bullets. In the final course you have to battle your way through a combination of obstacles taken from the first three. To avoid ditches of water, monkey climb across the overhead

bars (this is also a good place to hide from Rex).

Throughout the game your leader will yell out commands such as "faster!", "stand up!", and "give me ten press-ups" in an American-Geordie accent. These must be done as soon as you hear them or you will be in for it. Although sometimes your leader gets a bit confused and has, on a couple of occasions, told me to stand up while still under some barbed wire (could be very painful!).

If you are feeling in a creative mood, you might fancy making up some of your own muscle building courses, using the edit facility. This is fairly simple to use and will certainly prolong the game's lastability.



At first I found the game quite hard to get into, mainly because the instructions are too complex and have not been translated from French too well, but if you keep at it you will soon get the hang of it. But I think the game is best suited for older players rather than very young children.

There is no music (apart from on the title screen) but there are some good sampled sound FX and speech. The visual affect could have been improved — the graphics are not very much better than some you get on 8-bit games.

Action Service has been well programmed but there just isn't enough to it to rank it with the best. Original, and fun at times, good but not quite top class.

D.H.

Graphics:	6
Sound:	7
Playability:	7
Value:	6
Price:	£19.95

Around The World In 80 Days

The British software house Pandora has been on the go for a few years now, producing a steady stream of reasonable, if not shattering, leisure software on some unusual themes. Their latest release for the Amiga is *Around The World in 80 Days*, loosely based on the Jules Verne classic of the same name.

The story went something like this: It was an autumn evening just like any other in 19th century London. Tucked away in a quite corner of the city, in a discreet gentlemen's club, a young eccentric by the name of Phileas Fogg was indulging in perhaps a little too much wine. Encouraged by his friends he declared he would take on a completely unimaginable challenge - to travel around the world in 80 days.

Of course, nobody takes him seriously until he bets his entire fortune of £20,000 on the seemingly impossible feat and this is where you come in. The future of Fogg and his large stake entirely in your hands, as you leave London for India, Japan on to America and finally to return home to London within the allotted time.

The main screen consists of a world map, a calendar display, three option icons and a pause icon. As the game begins you may elect to play cards or bribe the captain to go faster. But bribes cost money and that comes out of your £20,000 so you had better be a good card shark.

The card game is nothing more sophisticated than high/low. This is where you are given five cards, four of which are face down. You must then decide if the next card is higher or lower than the previous one. When (if) you've won some extra cash you can bribe the captain of the ship to go



faster which saves time. Clicking play allows the game to continue to the first locality.

First off Fogg and his trusted butler, Passepartout, reach India. This is confirmed by a short newspaper cutting speculating whether Fogg can make it through the jungle then it's on with the action. These action screens are set in each of the four locations and each utilise the typical sideways scrolling idea. The backdrops are graphically quite reasonable and the sprites large, but the scrolling seems to have been borrowed from the Atari ST cousins - jerky and unstable.

What you have to do in India is unclear since the instructions don't seem to mention the birds, natives or the vicious lion. I tried spearing the lot but to little avail before time ran out.

In the end I found the game frustrating and perhaps even disappointing rather than the nice arcade/adventure I had expected. I found a poor excuse

for a shoot'em up. I have to expect much better from Amiga software at any price, just compare Logotron's excellent Starry. The digitised sound is reasonable, but riddled with bugs and the game constantly spins the disk which surely can't do any good, besides which the noise will get on your nerves after a while. Worse still, the game has a nasty habit of crashing at the slightest excuse. It may look nice on the stills, but avoid this one.

J.F.

Sound: 0
Graphics: 5
Playability: 5
Overall: 5
Price: £19.90

SPITTING IMAGE

Domark

I wonder what Domark had in mind when they bought the rights to publish a game based on the Central TV's satirical puppet show. The programme's format of a series of short comedy sketches has little, if anything in common with a typical computer game format. Sure enough, this absence of potential shows through in the resulting game.

A prophet tells of a time when the whole world has been taken over by an evil leader. Which leader it turns out it be is up to you. The Ayatollah, Thatcher, Reagan, Botha, Gorbachev and the Pope are the possible candidates. You have to decide which of these you would rather come out on top in this impending world war by taking control of him (or her) and beating the others into submission.

The character selection screen is guaranteed to raise a smile with its animated caricatures of the leaders. From then on it is depressingly downhill all the way. Choose a couple of characters and its on to the fight scene. Each opponent has four attacking moves and a sidekick to help them out. Blows to the head, body and feet take care of three, with the fourth varying from one character to another.

"From the keyboard you can call upon your sidekick who attacks your opponent with various projectiles, such as condoms and whisky bottles."

From the keyboard you can call upon your sidekick who attacks your opponent with various projectiles, such as condoms and whisky bottles. If you win three out of five bouts, its back to the selection screen to pick your next opponent.

It was vital that Domark did a good job with the graphics. They have done just that as far as the caricatures go. Wheeze-worthy as the



graphics are, they are wasted on such a simple, dated game as this. For one thing, beat 'em ups have to be convincing. The clown-like battles of Spitting Image are neither exciting nor amusing, and become tedious before you have even played all the characters. There is a pleasant rendition of the TV show's theme tune but the sound effects would be better suited to a shoot 'em up.

I can't say Domark have wasted the Spitting Image license, as it had little going for it in the first place. Twenty pounds for a five minute chuckle is definitely not my idea of value for money. Comedy and computer games rarely make a winning combination (remember The Young Ones?) and Spitting Image is no exception.

T.H.

Graphics:	7
Sound:	5
Playability:	4
Value:	4
Price:	£19.95

S.C.C. MAIL ORDER

COMMODORE HARDWARE

PACK 1		PACK 2		PACK 3	
Amiga 500	Modulator/Mouse	Pack 1 + the following		Pack 1 + Pack 2	
Workbench +		Outrun, Obliterator, Better		+ the following	
Basic/Extras +		Dead Than Alien, Atax,		Competition Pro 5000	
The Very first		Backlash, Stargoose,		Joystick	
2 manuals		Hellbent, Quadrailen		Mouse Mat, Dust Cover	
				5 x 3" DS/DD Disks	
£379.99		£399.99		£419.99	

Amiga 500	£359.99	Amiga 2000	£399.99
Amiga 500/1084S	RING	Amiga 2000/1084S	RING
A1010 Floppy Disk Drive	RING	A1010 3.5" 1 Mb Internal Disk Drive	£139.99
A1084S Hi-Med Res Colour Monitor	RING	A2094 20Mb Amiga DOS Hard Drive	£499.99
1900M Hi Res Mono Monitor	£99.99	A2092 20Mb MS-DOS Hard Drive	£476.99
A501 Ram Expansion/Clock	£134.99	A2052 2 Mb Ram Expansion	£346.99
A520 Modulator	£22.50	A2088 PC XT Bridge Board	£459.99
MPS1200 Printer	£149.99	MPS1500 Colour Printer	£199.99

CUMANA DRIVES

1Mb 3.5" Floppy Disk Drive	£89.99	1Mb 5.25" Floppy Disk Drive	£121.99
1Mb 3.5" Floppy Disk Drive + PSU	£116.99	1Mb 5.25" Floppy Disk Drive	£133.99

SUPRA DRIVES

20Mb Hard Disk Drive A500/1000	£584.99	20Mb Hard Disk Drive A2000	£566.99
30Mb Hard Disk Drive A500/1000	£623.99	30Mb Hard Disk Drive A2000	£625.99
60Mb Hard Disk Drive A500/1000	£1079.99	60Mb Hard Disk Drive A2000	£999.99

PHILIPS MONITORS

CM8801 14" RGB Colour	£196.99	CM8833 14" RGB/CVBS Med Res Colour	£259.99
CM8802 14" RGB/CVBS Colour	£208.99	CM8852 14" RGB/CVBS Hi-Med Res Colour	£294.99

MATRIX PRINTERS

Amtrad DMP2160	£142.99	NEC P200	£389.99
Amtrad LQ3500	£349.99	NEC P6	£542.99
Canon PW1080A	£309.99	Panasonic P1081	£216.99
Canon A6-F	£423.99	Panasonic P1082	£252.99
Epson LQ2100	£749.99	Sekisui SP-108A	£165.99
Epson LQ300	£304.99	Sekisui SP-1200A	£185.99
Micro P MP135+	£144.99	Star LC10	£221.99
Micro P MP165+	£199.99	Star LC10 Colour	RING

LASER PRINTERS

Canon LBP-8 A2	£1790.00	HP LaserJet II	£2199.00
Epson QG3500	£1795.00	Panasonic P4450	£2030.00

GRAPHIC TABLETS

CAP A4 Tablet	£372.99	Cherry A3 Tablet	£534.99
CAP A3 Tablet	£615.99	Easy L44 Tablet	£269.99

V10EO DIGITISERS/ENHancers

DIGIVIEW Gold	£116.99	V03 Frame Grabber	£569.99
DIGIPIC Frame Grabber	£199.99	V03+ Colour Frame Grabber	£822.99

SOUND DIGITISERS/SAMPLERS

Pro Sound Designer	£67.99	Sophus SS	£126.99
Pro Midi Plus	£24.50	Perfect Sound	£69.99

MIDI INTERFACES

ECE Midi Interface	£49.99	Midi Master 500	£30.99
--------------------------	--------	-----------------------	--------

MODEMS

Demon II	£82.99	Pace Linnet	£139.99
Designer	£102.99	Pace Series Four 1200S	£369.99
Mirron WS2000	£109.99	Pace Series Four 2123S	£259.99
Mirron WS4000	£169.99	Pace Series Four 2400S	£437.99

EMULATORS

64 Emulator	£57.99	Access 64	RING
-------------------	--------	-----------------	------

CABLES

Standard Centronics Printer Cable	£7.99	4-Way Adaptor	£4.99
Deluxe Centronics Printer Cable	£9.99	Modem Cable	£2.99
Twin Mouse/Joystick Extension Cable	£4.99	Modern Cable	£12.99

DISK STORAGE/HEAD CLEANERS

Disk Box for 40 x 3.5" disks	£7.99	Disk Box for 50 x 5.25" disks	£9.99
Disk Box for 80 x 3.5" disks	£9.99	Disk Box for 100 x 5.25" disks	£10.99
Disk Box for 120 x 3.5" disks	£11.99	Disk Box for 150 x 5.25" disks	£12.99
3.5" Disk Head Cleaner	£4.99	5.25" Disk Head Cleaner	£4.99

BLANK DISKS

SONY 3.5" DS/DD Unbranded disks x 1	£11.95	SONY 3.5" DS/DD Unbranded disks x 10	£84.95
SONY 3.5" DS/DD Unbranded disks x 25	£32.75	SONY 3.5" DS/DD Unbranded disks x 100	£123.00

SOFTWARE

WORD PROCESSING

Becker Text	£98	LPO Writer	£98	VizaWrits	£82
Excelerator	£159	Pro Write V2.0	£71	Word Perfect 4.1	£179
Kind Words V2.0	£40	Text Pro	£47	Write & Fix (1 Mb)	£55
Protext v4.0 from Amor... Now available ... £60.00					

DATABASES

Acquisition V1.3	£196	K Date	RING	Superbase Personal	£69
Data Retrieve	£38	K Amiga File	£39	Superbase Prof	£173
Data Retrieve Prof	RING	K Morotliche File	£63	Superbase Professional	£42
PageMaster LaserScript/Postscript Module £26					

DESK TOP PUBLISHING

City Deck V1.1	£82	Professional Page	£196	Publish/Partner Prof	RING
Pegesetter	£63	Publisher Plus	£88	Shakespeare	£118
PageMaster LaserScript/Postscript Module £26					

LANGUAGES/ASSEMBLERS/COMPILERS

AC/Basic Compiler	£154	Benchmark C Lib	£63	MCC Pascal V2.0	£62
AC/Fortran	£232	Benchmark IFF Lib	£63	Macro Assembler	£49
AC/Fortran/Turbo Amiga	£406	Benchmark Simpler	£63	Modula 2 Standard	£69
APL 68000 Amiga	RING	Cambridge Lisp	£113	Modula 2 Developer	£118
Assempro	£47	Devpac	£45	SAM Basic	£76
Aztec C Professional	£158	Fortran Prof Pack	£150	MCC Shell	£35
Aztec C Developer	£245	K Sekta Assembler V.5	£38	MCC Toolkit	£28
Aztec C Commercial	£409	Lattice C V5	£190.00	True Basic	£57
Benchmark Module 2	£110	Lattice C++	£281.00	T/BASIC Runtime Sys	£120

UTILITIES

Amiga DOS Express	£26	Glamox 2.0	£41	Maxidesk	£53
Award Maker	£31	Goldsip 2	£24	Newline Font Fonts	£20
Butcher 2	£24	GOMF V2.1	£24	Powerwindow 2.5	£55
Climate	£29	Grabbit	£24	Project D	£31
Diskmaster	£39	Interchange	£34	Quicksack	£30
Disk 2 Disk	£41	Invisible	£50	Studio Fonts	£20
DOS 2 DOS	£31	K Gadget	£23	Studio Magic	£55
FACCI	£24	K Roger	RING	The Calligrapher	£55
Fipade	£24	Lion Font	£31	Transformer	£110

ART/GRAFICS/ANIMATION

Aegis Draw 2000	RING	IntroCAD	£47	Pro.net	£374
Dynamic CAD V2.3	£374	Pro Board	£374	X CAD	£363

MUSIC/SOUND

A Drum	£28	Deluxe Hot & Cool Jazz	£8	Pro Midi Studio s/w	RING
Aegis Audiomaker	£26	Deluxe Rock & Roll	£8	Pro Sound Designer s/w	£28
Aegis Sonix V2.0	£45	Instant Music	£19	The Music Studio	£26
Deluxe Music	£49	Music X	RING	Ultimate Sound Tracker	£28

COMMUNICATIONS

A Term	£38	K Comm 2	RING	On Line	£38
BBS PC	£95	Maxicom	£38	Ruby View/Term	£79

EDUCATIONAL

Descartes	£24	Aesops Fables	£20	The Ugly Duckling	£20
Galileo	£45	Chicken Little	£20	Three Little Pigs	£20
Mathamaton	£41	Little Red Hen	£20	Intellitype	£20

ENTERTAINMENT SOFTWARE

Most old and new titles available from stock.					
Our prices may not be the cheapest, but our service is first class, as is our recorded delivery postal service!					



S.C.C. MAIL ORDER



Put a Laptop on your lap!

T HE Z88 Laptop Computer - high technology at an affordable price, which you can connect to your Amiga . . .

Bounce this baby on your knee! The Z88 laptop computer from Cambridge Computers is an exciting, attractively priced productivity tool for all your computing needs. Use it for business, for pleasure, and most importantly — to write on it your letters, and print them out to AUI. You can upload from it to your Amiga or P.C.

And, as a faithful AUI reader, you can make an even better deal. With a purchase of a Z88 at the normal retail price of £287.50 inclusive of VAT you will receive ABSOLUTELY FREE A Mains Power Adaptor (£9.95) and a carrying case (£9.95). That means a saving of £19.90.

Need to order additional components? No problem. AUI also offers the entire range of Z88 peripherals:

32K RAM Pack	£19.95
128K RAM Pack	£49.95
512K RAM Pack	£199.95
32K EPROM Pack	£19.95
128K EPROM Pack	£49.95
Z88 PC Link II	£34.95
EPROM Eraser.....	£39.95
Serial Printer Cable.....	£9.95
Parallel Printer Cable...	£29.95
Z88 BBC Link	£24.95

**Please allow 28 days
for delivery**

To Amiga User International
40 Bowling Green Lane,
London EC1R 0NE

Please send me Z88 laptop computer(s) with my FREE Mains Power Adaptor and Carrying Case for each one I order.

I enclose £287.50 for each computer including VAT, postage and packing. Readers outside the U.K. and Eire please add £7.50 for surface overseas mail.

Please make cheques payable
to Croftward Limited or debit
my ACCESS account:

Expiry date

Signature

Name _____

Address

LAN COMPUTER SYSTEMS

Show Room open Mon to Sat 10.30 am to 5.30 pm Telephone 01-597 8851

PACK 1

WINTER GAMES, OUT RUN, FINAL ASSAULT, WIZARD WARZ, LEADER BOARD, BIRDIE GOLF, MARBLE MADNESS

£39.00

PACK 5

HELLBENT, QUADRALLIAN, STAR GOOSE, BACK LASH ATTACK, BETTER DEAD THAN ALLIEN, INTERNATIONAL SOC., WINTER OLYMPIAD, OUT RUN, MARBLE MADNESS

£45.00

PACK 4

20 3.5" Disks
3.5" Cleaning Disk
Joystick
Dust Cover
Mouse Mat
£49.00+

PACK 2

AMEGAS, ART OF CHESS,
BARBARIAN INSANITY FIGHT,
IKARI WARRIORS, BUGGY BOY,
MERCENARY, TERRORPODS,
THUNDER CATS, WIZBALL,
MARBLE MADNESS

ADD £39.00 +VAT

PACK 3

GRID START, ECO, KARTING
GRAND PRIX, WIZBALL, THAI
BOXING, TERRORPODS, FLIGHT
PATH 737, BARBARIAN, XR.35
OBLITERATOR, LAS VAGAS,
MARBLE MADNESS

ADD £59.00 +VAT

CUMANA 3.5" DISC DRIVE
WITH ON/OFF SWITCH £86
A501 RAM £120
20MB HARD DISK £599

TV MODULATOR £21
GLENLOCKS FROM £99
AMIGA 500 INC TV MOD £320

A2000 COMPUTER 84YT £849
8MB RAM BOARD PHONE
YT BRIDGE BOARD £299
20 MB HARD DISK £199

A LARGE RANGE OF SOFTWARE AND HARDWARE IN STOCK

PRINTERS

Panasonic KXP 1081 £145.00
Star LC10 £169.00
Star LC10 Colour £215.00
Star LC10 Sheet Feeder £55.00
NEC P2200 £279.00
Epson LX800 £169.00
Star LC 24/10 £279.00
Star LC 24/10 Sheet Feeder £55.00
Oklmatco 20 Colour Printer £120.00
NEC P6+ £469.00
NEC P7+ Phone
Citizen 120D £129.00

*Large range of alternative printers available. Please phone for quotation.
All printers exclusive of VAT*

MONITORS

Special Offer Colour Monitor .. £189.00
Philips 8833 £219.00
Philips 8852 £259.00
Philips 9073 £369.00
Philips Monitor Green £69.00
Philips Monitor Amber £79.00
NEC Multisync II £469.00
Commodore 1084S £239.00

Ferguson TV/Monitor 14" £189.00
Philips 14" R/C Tele-Text £217.00
Philips 15" FST £189.00

All monitors complete with computer leads

ACCESSORIES

Mouse Mat £4.95
Dust Cover - Computer £7.95
Dust Cover - Monitor £9.95
Dust Cover - Disk Drive £5.95
3.5" Disks (box 10) £14.95
5.25" Disks (box 10) £9.00
Disk Boxes from £2.00
Copy Stand A4 £19.95
Data Switch 2way £29.95
Data Switch 4way £39.95
Joysticks from £7.00
Monitor Stands £7.00
Printer Paper from £9.95
Printer Ribbons from £3.00
All accessories inclusive of VAT

LANSOFT CLUB LANSOFT CLUB

The computer club for Amiga and ST users everywhere, all prices include VAT.

Membership £20 per year

So what do you get?	RRP	Lansoft
Tau Ceti	£24.95	£5.00
Hacker II	£24.95	£5.00
Ogre	£24.95	£5.00

So you can save up to 80% off your software on our special club promotion

HOW TO ORDER

Enclose letter with cheque, postal order or credit card number for amount including VAT and delivery charge. Credit card holders may order by telephone contact sales desk. Despatch normally within 24 hrs.

Official orders from Education Establishments, Local Authorities and Government Departments welcome. Contact Education Dept. Prices subject to change without notice. E&OE.

EXPORT HOTLINE 01-597 8854 TELEX: 995548 Fax: 01-590 6057

Dealer and export enquiries: Contact Trade Dept.

All Software and Books include VAT and Delivery

All Hardware Systems £10.00 Courier Service

Prices exclusive of VAT Unless otherwise stated and Correct at time of going to press.

Educational callers ask for Tony Judge

Come in and see us at 1063 High Road, Chadwell Heath, Romford, Essex. Just around the corner to Chadwell Heath station or easy parking in Manstead Gardens, just opposite, or PHONE 01-597 8851 show room open Mon to Sat 10.30 am to 5.30 pm.

PRO VIDEO PLUS

Indulging in a little character analysis, Peter Lee generates some enthusiasm for a high quality, high cost, professional program.

Even if it did not say so on the manual, the price tag tells the story — "Pro Video Plus is recommended for professional use only."

And it fits the bill perfectly; this heavyweight fourth generation titling utility from JDK Images is a true state of the art character generator for the Amiga.

Written by a video professional, it combines a series of techniques which are way ahead of the competition in this highly specialised field.

PV Plus exists for one reason — displaying text and images in TV applications.

But there is so much more to the program than simply a sophisticated text-orientated slideshow. The degree of control over text attributes and special effects is phenomenal, and is backed up by a sophisticated editing system which is remarkably easy to master.

registration number. Each program has a unique number, so although you can backup your disk, this number still has to be input at the start of every level. This will make the tracing of illegal copies easier while still retaining the user's right to make a working copy of an expensive piece of software. There is also a demo disk in the package, which is completed by a large ring-bound manual whose only fault is a lack of examples in the program's superb transitional effects.

PV Plus works only in the Amiga's high resolution mode and requires at least 512K fast memory, but preferably more to widen the number of screens you can score. (NOTE — the manual warns that some problems can be experienced by use of the 501 RAM expansion on A500s and A2000s, because they say this is not true fast RAM).

PV Plus is equipped with four font styles — Modern, Roman, Traditional and Clean; they come in sizes 32, 48, 64 and 80 and can be typed in light, bold, italicised and underlined. Because of their specialist nature it is impossible to import any other fonts you may have, unless they are from the firm's alternate sets.

Fonts can be of any colour — and if you want, can be in two colours mixed in a variety of ways (from barber's pole stripes, cobble and metallic, to top and bottom half colour split).

A line of text can have any number of sizes and styles, and can be justified left, centre or right. Additionally there is a variable shadow option of any colour, and a very useful edging facility (for instance putting a black outline around light characters to make them easier to read — as they do generally on TV subtitles).

Once a page has been completed, moving to another page in the batch is easily achieved with a Function keypress; in fact all PV Plus commands are controlled by the Function keys, with small

NOW ADJUST
YOUR VERTICAL
AND
HORIZONTAL
CONTROLS

The program works in PAL display mode for entire screen imaging, and comes on a system disk which can only be accessed by entering a



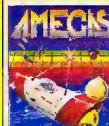
On entering the program from a CLI you are presented with a blank page, one of an initial set of a hundred to begin work on. Entering text on a line is simply a matter of typing it in, but first you would set up the text attributes required.



menus opening up on the display's bottom line for selection by the cursor keys. A keystrip is provided for slotting over the top row of keys.

So far nothing really outstanding; but where things start to evolve into the professional league is in the transitions options. This is where the real powerhouse of the program lies

FREE! TENSTAR PACK WORTH OVER £229!



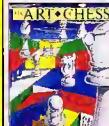
FREE! - AMEGAS - by Players



FREE! - OUT OF SPACE - by Silica



FREE! - INSANITY FIGHT - by Microdeal



FREE! - ART OF CHESS - by SPA



FREE! - MERCENARY COMP - by Novagen



FREE! - BARBARIAN, ULT WARRIOR - by Palace



FREE! - TERRORPODS - by Psygnosis



FREE! - BUGGY BOY - by Elite



FREE! - THUNDERCATS - by Elite



FREE! - IKARI WARRIORS - by Elite



FREE! - WIZBALL - by Ocean

Commodore AMIGA



ONLY
£3.34
PER WEEK
RETURN FOR DETAILS

£346 .95 +VAT= £399

INCLUDES FREE UK DELIVERY

The Amiga 500 is one of a new breed of technologically advanced computers, which are now emerging as the new standard for home computing, based around the new Motorola 68000 chip. The A500 has 512K RAM and a 1Mbyte double sided disk drive built-in. It can be connected directly to a wide range of monitors, or to a domestic TV set through a TV modulator. Designed with the user in mind, the A500 features a user friendly WIMP environment and comes supplied with a free mouse. And, when you buy your Amiga from Silica Shop, the UK's No1 Amiga specialists, you will experience an after sales service that is second to none, including a technical support helpline and free newsletters and price lists. Return the coupon below for our current information pack, which will give details of the Silica service and the very latest Silica Amiga offers.

E&OE.

WHY SILICA SHOP?

Before you decide when to buy your new Commodore Amiga computer we suggest you consider very carefully WHERE you buy it. There are MANY companies who can offer you a computer, a few peripherals and the top ten selling titles. There are FEWER companies who can offer a wide range of products for your computer as well as expert advice and help when you need it. There is ONLY ONE company who can provide the largest range of Amiga related products in the UK, full time Amiga specialists, telephone and direct support, monthly free newsletters and brochures delivered to your door for as long as you require after you purchase your computer. That one company is Silica Shop. We have been established in the home computer field for ten years and can now claim to meet our customers requirements with an accuracy and understanding which is second to none. Here are just some of the things we can offer you.

THE FULL STOCK RANGE: The largest range of Amiga related peripherals, accessories, books and software in the UK.

AFTER SALES SUPPORT: The staff at Silica Shop are dedicated to help you to get the best from your Amiga.

FREE NEWSLETTERS: Mailed direct to your home as soon as we print them, featuring offers and latest releases.

FREE OVERNIGHT DELIVERY: On all hardware orders shipped to Silica Shop customers within the UK mainland.

PRICE MATCH PROMISE: We will normally match our competitors offers on a same product same price basis.

FREE TECHNICAL HELPLINE: Full time team of Amiga technical experts to help you with your technical queries.

But don't just take our word for it. Complete and return the coupon below for our latest Amiga literature and begin to experience the Silica Shop specialist Amiga service.

PHOTON PAINT PACK

A500 Computer	£399.99
TV Modulator	£24.99
Photon Paint	£69.95
TenStar Pack	£229.50
TOTAL RRP:	£724.43
LESS DISCOUNT:	£325.43
PACK PRICE INC VAT:	£399

1084S MONITOR PACK

A500 Computer	£399.99
1084S Colour Monitor	£299.99
Photon Paint	£69.95
TenStar Pack	£229.50
TOTAL RRP:	£999.43
LESS DISCOUNT:	£350.43
PACK PRICE INC VAT:	£649

FREE FROM SILICA

When you buy the Amiga 500 from Silica Shop, you will not only get a high power, value for money computer, we will also give you some spectacular free gifts. First of all, we are now including a TV modulator with every A500 stand alone keyboard, so you can plug your Amiga straight into your TV at home (the modulator is not included with the A500-A1084S pack as it is not required for use with monitors). Secondly, we have added a free copy of Photon Paint, an advanced graphics package with an RRP of £69.95. Last (and by no means least), so that you can be up and running straight away, we are giving away the sensational TENSTAR GAMES PACK with every A500 purchased at Silica Shop. This pack features ten top Amiga titles which have a combined RRP of nearly £230! Return the coupon for details.

FREE TENSTAR PACK

Amegas	£14.95
Art Of Chess	£24.95
Barbarian, Ult Warrior	£19.95
Buggy Boy	£24.95
Ikari Warriors	£24.95
Insanity Fight	£24.95
Mercenary Comp	£19.95
Terrorpods	£24.95
Thundercats	£24.95
Wizball	£24.95
TOTAL RRP: £229.50	INC VAT

DO YOU OWN AN AMIGA?

If you already own an Amiga computer and would like to be registered on our mailing list as an Amiga user, let us know. We will be pleased to send you copies of our price lists and newsletters FREE OF CHARGE as they become available. Complete the coupon and return it to our Sidcup branch and begin experiencing a specialist Amiga service that is second to none.

SILICA SHOP:

SIDCUP (8c Mail Order) 01-309 1111
1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX
OPEN: MON-SAT 9am - 5.30pm LATE NIGHT: FRIDAY 9am - 7pm

LONDON 01-580 4000
52 Tottenham Court Road, London, W1P OBA
OPEN: MON-SAT 9.30am - 6.00pm LATE NIGHT: NONE

LONDON 01-629 4234 ext.3914
Selfridges (1st floor), Oxford Street, London, W1A 1AB
OPEN: MON-SAT 9am - 6.00pm LATE NIGHT: THURSDAY 9am - 8pm

To: Silica Shop Ltd, Dept PCWK 12/88, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX
PLEASE SEND ME FREE LITERATURE ON THE AMIGA

Mr/Mrs/Ms:

Initials:

Surname:

Address:

Do you already own a computer?
If so, which one do you own?

Postcode:

DEPT. 03.89.

PRO VIDEO PLUS

continued from page 74

which turns it from a character generator into a super page animator.

"Once selected, each transition can be given a speed and dwell factor — how quickly the effect will last, and how long it will display the new page".

Over 90 page effect transitions are supported; effects 0 to 32 affect whole pages, 33 to 91 act on specific lines, while number 92 is set by the user. Once selected, each transition can be given a speed and dwell factor — how quickly the effect will last, and how long it will display the new page. After editing a sequence you can view the results by pressing the Escape key and going into Page Mode; pressing the up/down cursor



keys allows you to see the sequence frame by frame. Or you can set the program to automatic and watch as many pages as you have defined play through.

A number of effects are ingenious, and one of my favourites is the expanding and contracting screen, which either opens up from a single line, or compresses to a line.

What's more, if you have loaded in an IFF screen as a background, then this too is affected by the transition. The program allows picture to be loaded in up to memory limitations, and an image can be selected for use as a background from a list of those available.

Up to 16 colours are permitted per picture, which must be in high res. Once text has been added, the complete screen can then be re-saved as an IFF image for later manipulation from within an art package — useful for registering where the lines of text are placed when considering designing a backdrop.

CLEAN FONT
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890
!@#\$%^&*()

ROMAN FONT
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890
!@#\$%^&*()

TRADITION FONT
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890
!@#\$%^&*()

uvwxyz
JKLMNOP
1234567890
!@#\$%^&*()

Modern Font
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890
!@#\$%^&*()

INCLUDED FONTS

Another way of composing a background is achieved simply by defining a line of text. This can then be used as either pattern, staggering itself over the screen, or in vertical lines (wallpaper). This background can be copied to subsequent pages, or new ones designed for any other pages.

Colour cycling can be enabled, which as well as offering a semblance of animation of background pictures (provided they conform to be standard used in Dpaint) also nicely simulates metallic shimmering on text written in a range of one particular colour. The palette is also editable, though rather clumsily with RGB value controls. A small set of graphics characters is available from the keyboard — arrows, trade-mark symbols and so on, and pressing the Help key displays a status line to help in memory management.

The program saves screens to disk in banks of 100 regardless of how many frames actually have work on them. This includes all the text, line and page attributes, but not the font data or IFF images, which have to be present on disk when you next load in your work. There can be up to 2600 screens stored in memory allows, and as a matter of interest, a databank of 100 pages takes up less disk space than one standard high res IFF picture!

Pro Video Plus
CABLE TELEVISION
BROADCAST TELEVISION
EDUCATIONAL TV
COMMERCIAL TELEVISION
Pro Video Plus

CONCLUSION

Business and professional software is priced at a level the market will stand, which in the case of Pro Video Plus is relatively high. There is little in the way of dedicated competition, and certainly nothing I have seen packs the power or the features contained in the program. The massive amount of data which can be stored both in memory and on disk makes it a highly cost-effective and efficient system. The effects, some needing substantial editing skills, are imaginative and very professional. If you are interested then ask to see the demo disk, which is a highly polished piece of work — though which I suspect took more than a little time to achieve!

Price: £249.95

Supplier: Digipro Ltd, Enterprise House, Howard's Grove, Southampton, SO1 5PR Tel. (0703) 703030.

SIREN SOFTWARE

NEW

*** AMIGA SOUNDBLASTER ***

NEW

The AMIGA SOUNDBLASTER is a small stereo amplifier that comes complete with 2 high quality 20 WATT 3 way speakers. It is easily connected to your Amiga 500/1000 and adds a new dimension to all games.

Everyone knows that the Amiga has the best sound facilities available on any popular computer today. Unfortunately until now, unless you could connect your Amiga to your stereo system you could not appreciate the quality of the sound.

- ★ Comes complete with 2 high quality stereo speakers
- ★ Twin volume/balance controls
- ★ Headphone socket
- ★ Very easy to connect
- ★ Compatible with all software/hardware

★★ Free stereo headphones with all orders
for a limited period ★★

**Amiga Soundblaster is just £39.99
including VAT and P&P**

**SIREN SOFTWARE · TEL: 061 228 1831
84-86 PRINCESS ST, MANCHESTER M1 6NG**



SOUTH EAST SOFTWARE

Enjoy your
Amiga
with S.E.S.

For a REALISTIC Price and
a REALISTIC Service

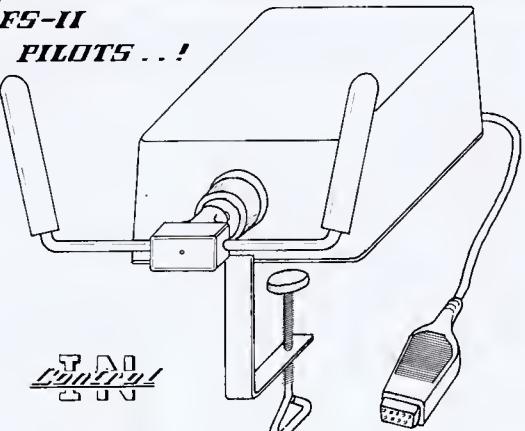
Enjoy Your
Amiga
with S.E.S.

LEISURE	
Falcon	21.80
SideWinder	8.90
Roadwars	15.60
Cigarnoid	12.50
StarGlider II	15.60
Virus	15.60
Carrier Command	18.70
Football Manager 2	15.60
Rocket Ranger	21.80
Vectorball	12.50
Star Wars	15.60
Spacephaser	12.60
Elite	18.70
Bionic Commando	19.95
Buggy Boy	18.70
Menace	10.00
Joe Jester II	15.60
Defender Of The Crown	21.80
Interceptor	18.70
Phalanx II	12.60
Kiktart II	8.90
Fire & Forget	10.00
Crazy G's	18.70
Frost Byte	12.60
Creck	15.60
Leatherneck	15.60
Dominator	18.70
Aaargh	10.00
Xenon	15.60
Phantasie III	19.95
Jinxster	18.70
Thunder Cats	18.70
Ikari Warriors	18.70
Zool	9.00
Powerstyx	15.60
TV Sports Football	21.80
Impact	12.60
Fighter Command	23.40
Bubble Bobble	15.60
Cap'n	10.00
Impossible Mission II	19.95
Arkanoid	18.70
Balance of Power	21.80
Better Dead Than Alien	15.60
Block Lamp	15.60
Return of Genisis	15.60
OPERATION	
Operation Wolf	18.70
Cybernet	15.60
Sky Chase	15.60
Ego	10.00
Desert Kid II	18.70
Ninja Mission	8.90
Strike Force Harrier	18.70
Thal Boxing	8.90
Dungeon Master	18.70
Space Blod	15.60
Scrabble Delux	15.60
Art of Chess	18.70
Bermuda Project	18.70
Legend Of The Sword	18.70
Paranoid	18.70
Leader	8.90
Barbarian	18.70
Guzzler	12.60
Battlechess	18.70
Blasterball	8.90
BMX Simulator	12.50
1001 Classics	10.95
Battleships	14.95
BUSINESS/UTILITIES	
Animal Kingdom	29.95
Data Retrieve	37.50
ABasic Compiler	14.95
Amiga DOS Express	23.40
ADrum	29.95
Music Studio	19.95
Intro Cad	44.70
Shoot'em Up Con Set	18.00
PHOTON	
Photon Paint	49.50
Page Setter	88.00
Shakespeare	109.95
VIP Professional	72.90
Dirge	39.95
Home Accounts	21.80
Word Perfect 4.1	177.00
Kindwords	39.70
Excellence	170.00
Pro Write V2.0	69.95
Superbase Personal 2	75.50
Superbase Professional	183.00

**S.E.S. CAREFULLY SELECTED MAIL ORDER SOFTWARE
FOR YOUR AMIGA FROM S.E.S.**

For software not listed please Telephone for Price and Averability.
Prices include AT&P and the postage and £2 for overseas orders.
Please make cheques/postal orders payable to 'South East Software'.
Orders to 5 Silverlands Road, Hastings, East Sussex TN37 1DE. Tel: 0242 721318.
All goods subject to availability and prices subject to change without notice.

FS-II PILOTS . . !



PROPORTIONAL JOYSTICK-YOKE

Now the hardware begins to live up to the software! Control your Flight Simulator II aeroplanes in a REALISTIC way. Pull back yoke for up elevator and, as you take off, turn the yoke to bank your plane. Freely mix the controls for GREAT AEROBATICS! PROPORTIONAL and INSTANT response of the control surfaces brings FS-II ALIVE!

Nylon and stainless steel construction, housed in a textured ABS black box. Complete with 50mm black steel clamp and red handles.

U.K./C.I./B.F.P.O.	£29.95	Cheques & P.O.'s only
Europe	£31.45	Eurocheque/international money
U.S.A./Canada	£35.95	drawn on a U.K. bank. Payable
Australia/N.Z.	£36.95	to: INCONTROL

post to : INCONTROL
P.O. BOX 183
CAMBRIDGE
CB4 2XQ
ENGLAND

Prices include post & packing.
U.K.: 14 days or less.
Overseas : 14 days + Shipping time
Tel. 0223-313749 Trade enq. welcome

Spreading the Load

Kuma Computers' K-Spread spreadsheet has been around for some time now - Mark Smiddy went for a tour around the current version

If you run a small business or do an sort of accountancy, then I am in no doubt you will have come across, or at least heard of spreadsheets.

One advantage of K-Spread is its compatibility between other Kuma releases like K-Data and K-Word, so you could feasibly run your entire operation using just Kuma software.

K-Spread is supplied on one disk with a 74 page indexed manual. There is a lack of a "cheat sheet" or on-line help, perhaps Kuma could include these in future releases - they make life much easier for experienced users.

The program comes in two separate versions - with or without graph plotting capabilities. The two versions look very similar; the graphs appear as an extra part of the Display menu.

From startup, the most notable thing about K-Spread is the unusual and sometimes eccentric design - in places it looks as if the programmer included a feature for himself and then left it in the final version. This is most apparent in the way data and formulae are entered. The display consists of two windows; the main or sheet window and a smaller editing window tucked away in one corner. The title displayed in the window prescribes what will be entered in to it: Value, Text, Label or Formula.

The system works well, until that is you decide to expand the sheet to maximum size. Now the editor window gets pushed behind the main screen and you can not see what you are typing. Bringing the editor to the front remedies the situation slightly - but now obscures part of the sheet itself.

Moving around the sheet is achieved by an equally strange method. Pressing Return enters the data at the current position as you might expect

- however pressing Shift+Return holds the cursor over the current cell. Similarly holding Shift while using the cursor keys enters data at the current cell and moves the cursor one position in the selected direction. Finally, holding Shift while keying the left mouse button pulls the cursor immediately to the cell being pointed at. Criticism aside though, this system does work very well once you get used to it.

Spreadsheets are of course about calculations - lots of them and mostly repetitive. K-Spread features all the normal arithmetic functions like *+- it can even compute simple trigonometric equations. Surprisingly it makes no allowance for even basic financial computations like VAT discount and compound interest. Even so these can be entered in longhand. This omission does reduce the usefulness of K-Spread for advanced financial management - especially since the manual does not give details of the equivalent equations.

'When you "paste" the cells in their new position a small requester appears asking if a formula amendment is required — this ensures newly pasted formulas point to the correct positions within the sheet.'

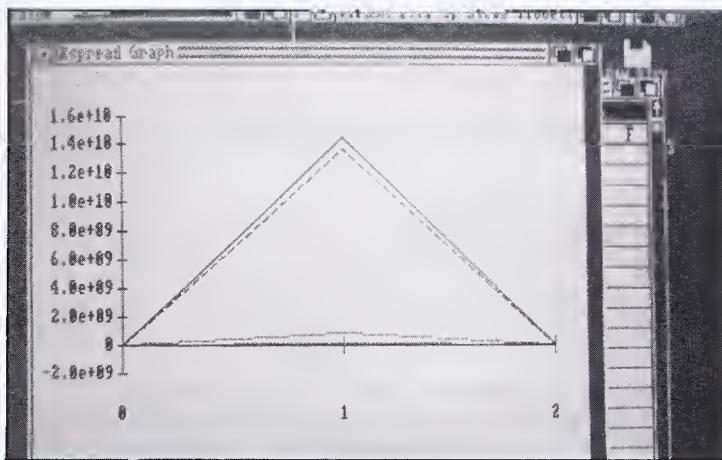
It makes up for some of its flaws by a range of useful features like Asks which prompts the user to enter a value at the current cell during the recalc phase; that is while the spreadsheet is being worked out. It even has some simple string functions and the ability to date and time any cell - this may for example come in useful for weekly reports.

Speaking of calculations and formulae brings me to another subject - bugs. Setting up a spreadsheet is not

A screenshot of the Kuma Kspread application window. The title bar says 'KUMA Kspread'. The main window shows a spreadsheet with columns A through F. Row 1 contains labels: 'Rate', 'Increment', 'Cashflow', 'Discount', and 'Cashflow'. Rows 2 through 12 show data entries. Row 13 is a summary row with the formula 'Sum ='. Row 14 contains the message 'Column D is Column E displaced one iteration'. The data is as follows:

	A	B	C	D	E
1			Cashflow	Discount	Cashflow
2	Rate =	2.18	-100.00	-100.00	-100.00
3	Increment =	#ERR	13.00	390.91	13.00
4			58.00	4793.39	6.00
5			21.00	15777.61	0.71
6			36.00	245884.04	0.37
7			94.00	2111132.50	0.12
8			23.00	1298290.39	0.82
9			21.00	107763284.83	0.44
10			18.00	839713294.38	0.16
11			32.00	13571123787.92	0.80
12				14533961056.72	-78.82
13	Sum =				

Spreading the Load



"The highlighted section can then be picked up like an icon and easily copied to another part of the sheet"

unlike writing a program in some respects and is just as prone to errors - and mistakes cost money. To help find bugs K-Spread operates simple but effective debugger. This has the useful feature of being able to flag a cell when its value goes zero, positive, negative or just changes value, during the recalc.

There are times when you need to select a range of cells and K-Spread makes this very easy - provided they are all visible. Holding the left mouse button and moving around the sheet - a system GEM programmers call dragging - highlights a range of visible cells. The highlighted section can then be picked up like an icon and easily copied to another part of the sheet.

When you "paste" the cells in their new position a small requester appears asking if a formula amendment is required - this ensures newly pasted formulas point to the correct positions within the sheet. During the "cut" operation, if the pointer is

moved outside the window the selection stops - I would have liked to have been able to select more cells in this way, perhaps by automatically scrolling the sheet when the pointer reached the boundary.

A similar method has been employed to expand the width of columns - clicking in the bottom left of a column heading causes a small rubber-box to appear which can then be dragged to the desired width.

"No modern spreadsheet would be much use without graphics. K-Spread does have graphics - remember there are two versions on the disk - but they are a little basic considering the power of the Amiga."

No modern spreadsheet would be much use without graphics. K-Spread does have graphics - remember there are two versions on the disk - but they are a little basic considering the power of the Amiga. Five options are available: horizontal and vertical stacked or clustered bar charts,

variations on the same theme and a line graph. Another staggering revelation - 3D I can live without, but no pie charts or scatter graphs! What are Kuma thinking about? Thankfully it is not all bad - at least it is possible to annotate the graph and print the results.

The current version of K-Spread 2 looks in places like it was put together in a hurry - even parts of the Intuition interface looks like visual ports from the ST version, and the example files contain errors. Worse still, the one supplied for review went Guru so frequently - almost at the drop of a mouse - I was almost completely unable to write this review.

Nevertheless, I have an high regard for the usual quality of Kuma products in general, and can only assume they will get these problems ironed out very soon. If, and only if they do then K-Spread 2 and when it appears K-Spread 3 look like being very strong contenders for the crown of the best Amiga spreadsheet. I say this because even though it is lacking in some respects - it also includes some features only usually found on software costing many times the price.

M.S.

Positive Points: Feature packed, flexible, compatible other Kuma products, excellent Debugger, reasonably fast, supports landscapes and portrait printing.

Drawbacks: Non-standard design, mediocre manual, very basic graph plotting facility, messy editor, no "direct mode".

Editorial notes: We have contacted Kuma about the problems we have highlighted and they assure us our disk was a faulty one which eluded their rigorous quality control. Release versions of K-Spread 2 are very stable unless memory is at a premium. K-Spread 3 for the Amiga is currently under development and should be available soon — watch this space.

Contact: Kuma Computers, 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW
Tel: 07357 4335

Product: K-Spread 2
Price: £59.95

EXPAND YOUR GAMES PLAYING MEMORY!

Dragon's Lair Competition

READYSOFT, the up-and-coming U.S. software company have set new standards for home computer games with their amazing new Dragon's Lair on the Amiga. Brilliant though it may be Dragon's Lair has one big problem. It is just too damned big. Yes, it has got so much stuff crowded into it, especially the stupendous graphics (undoubtedly the best yet on any home computer) — that in spite of the six disks, it will only run properly on an Amiga with sufficient memory, an A2000, A1000 or here come the kicker an expanded A500. If you have one, okay, if not you are going to have to sit with your mouth-watering while the lucky expanded ones get their hose torn off by the Dragon. (You do know that hose was something they wrote in the middle ages, didn't you?)

That is unless you enter this Dragon's Lair Comp. of course. Because Entertainment International, who distribute Dragon's Lair in Europe have given us two terrific ½ Meg expansions for the A500 for Comp Prizes plus a copy of Dragon's Lair for each of the two lucky winners.

So if you would like to expand your gamesplaying memory all you have to do is answer the following questions:

1. What is the name of the daring young knight in Dragon's Lair?
2. What is a dirk? (Not the guy's name!)
3. What is the object of the hero's quest?
4. Which team programmed Dragon's Lair on the Amiga?
5. With what did the coin-op replace conventional bit-mapped graphics?

First all correct entries drawn by the fair hands of Comp lady Teresa get the prizes.

**Answers on a postcard please by April 15th, 1989 to
Dragon's Lair Competition**

C/O Amiga User International, 40 Bowling Green Lane, London EC1R ONE

ARCHIVE YOUR AUI COLLECTION

Now you can keep your Amiga User International magazines safe and clean. No more dog-eared covers or missing copies... You can protect your magazines in this high quality, specially-created AUI binder. This Amiga User International binder will comfortably hold a complete year's issues of your favourite Amiga magazine. It is a high quality product, British-made and comes with full binding instructions. It is manufactured in a rich, sage green with genuine gold blocked lettering.

Enhance your Amiga User International Magazine collection now for only £5.95 (inc. postage and packing). Send for one today! The AUI binders also make an ideal gift for other Amiga users too!

**TO AMIGA USER INTERNATIONAL
40 BOWLING GREEN LANE, LONDON EC1R ONE**



Please send me Amiga User International binders.
I enclose £5.95 for each binder including VAT, postage & packing.
Readers outside the UK and Eire please add £1.50 for surface
overseas mail

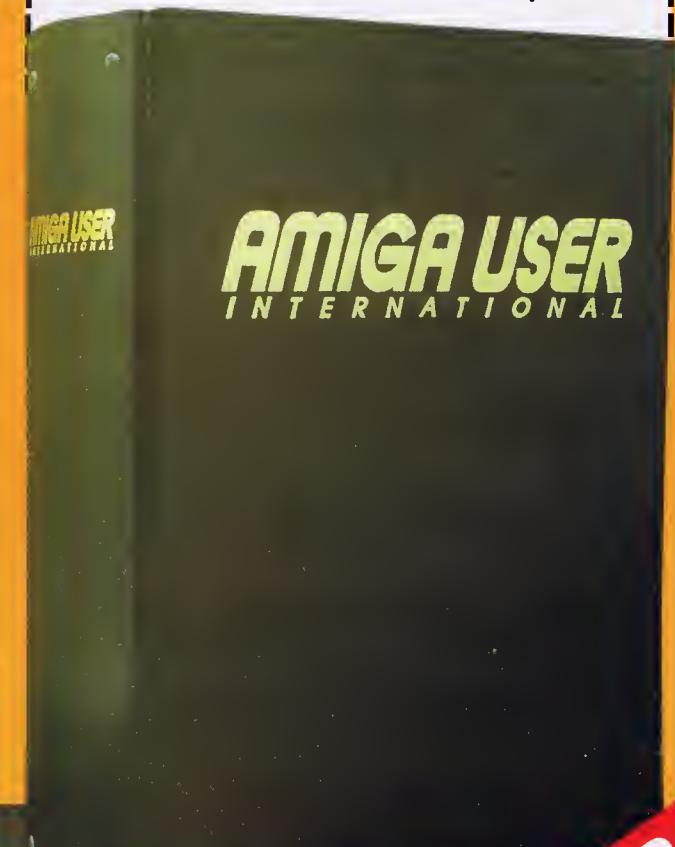
Please make cheques payable to Croftward Limited or debit my ACCESS account:

Name _____

Address

Tel No

PHOTOCOPIES
OF THIS COUPON
WELCOMED!



A red diagonal banner with white text reading "ARCHIVE YOUR AUI COLLECTION" is overlaid on a background of several vintage computer magazines. The magazines feature various titles like "PC", "COMPUTER", and "USER" in large, bold letters. The overall theme is retro computing.



While Probe are still working away at US Gold's official Amiga version of Roadblasters, Anco have come up with an altogether outstanding alternative Spy Hunter/Ouirun hybrid.

There's (Thank you for that sensible action, Anco!) no background scenario attempting to justify the game. It just has simple instructions to reach the end of each stage in the fastest possible time. Of course you are not alone on the roads; enemy cars and convoys of trucks often clog up the lanes. Clearing the way ahead is easy with your onboard gun. Just a single shot sees off the smaller road-users without so much as a puff of smoke.

Your transport is a stocky little customised family runabout. Disgustingly coloured in a dark shade of brown, this unlikely motor is extremely tough. In fact, it can survive any number of collisions with other cars. Constantly dwindling time and fuel levels are your main enemy.



Fuel can be topped up by driving over the star symbols that occasionally appear. Extra time is gained by performing the strange practice of jumping up at overhead signposts.

Tyre wear, fuel and engine temperature are all represented by unmarked gauges, and as such are more confusing than helpful. A scrolling map of the track gives advance warning of any bends and bridges, along with

'Not only is there a great danger of your car conking out half way through the game, there are grenade-lobbing assassin cars, roadside obstacles and rivers to watch out for.'

time and score counters. Not only is there a great danger of your car conking out half way through the game, there are grenade-lobbing assassin cars, roadside obstacles and rivers to watch out for.

Once you reach the end of the course, your credit balance is calculated from your performance in the last race. With this cash you can buy better weapons and equipment, or even a faster car. You need so much dough to get anywhere near the decent upgrades that you are forced to battle on with the basic set-up for most of the game. More readily available

Highway Hawks

Anco

H

weapons would have been welcome.

One thing Highway Hawks has over many of its rivals is proper 3D graphics. If you have played Ouirun or Fire and Forget you will be familiar with the "cardboard cutout" effect of their flat graphics. H.H. avoids this with



way awks



excellently realistic perspective on all the cars and trucks, it's just a bit of a shame they

'There's a fast frame-update rate and a very smooth road to boot.'

themselves weren't drawn a little better. Still, there's a fast frame-update rate and a very smooth road to boot.

While the game loads, there is a curiously irrelevant intro in which a skull emerges from a flaming pit, and a second or so of music that continually loops back on itself. Fortunately the sound effects are a lot more appropriate, few as they are. Roadblasting with H.H. is great fun.

After you have played it for a bit that you think there is no real goal to go for except the

extra weapons and cars, H.H. makes a terrifically satisfying mix of racing and meaningless destruction. At the price it is undoubtedly the best quality and value to emerge in this kind of game. Anco have totally excelled themselves with this one. Go buy Highway Hawks, you can't fail to enjoy it. Highly recommended.

B.V.

Graphics: 7
Sound: 6
Playability: 9
Value: 8
Price: £19.95

U.K. GAMES CHART

Game	Company	Last Month	Price
1. Operation Wolf	<i>Ocean</i>	(8)	£24.95
2. Thunderblade	<i>U.S. Gold</i>	(7)	£24.95
3. Falcon	<i>Mirrorsoft</i>	(-)	£29.99
4. Dungeon Master	<i>Mirrorsoft</i>	(-)	£29.95
5. Who Framed Roger Rabbit	<i>Activision</i>	(-)	£24.95
6. Rocket Ranger	<i>Cinemaware</i>	(1)	£29.99
7. California Games	<i>Epyx</i>	(-)	£24.95
8. Speedball	<i>ImageWorks</i>	(2)	£24.95
9. Double Dragon	<i>Melbourne House</i>	(-)	£24.95
10. Captain Blood	<i>Infogrames</i>	(5)	£24.95

JET

£34.95 (Commodore 64/128 £24.95)



The award-winning premier jet fighter simulator. Strikingly beautiful carrier-based sea missions complement multiple land-based combat scenarios. Jet also lets you explore the world of SubLOGIC Scenery Disks at lightning speed!

FLIGHT SIMULATOR

£34.95



Nearly 1.5 million copies of this classic, premium flight simulation program have been sold to date. Compatible with SubLOGIC Scenery Disks.

SubLOGIC is a small company dedicated to producing the finest in flight simulation software. Look for our "Flight Notes" advertisements, coming soon, for in-depth descriptions of current SubLOGIC software products and projects.

subLOGIC

35 Piccadilly
Suite 101-110
London W1V 9PB
Telephone: 01-439 8985

PROGRAM Magic



"Spectacular speed, solid,
good value"
ST/Amiga Format

"Very quick, simple,
equally suitable for small
businesses, clubs
charities and education.
Good value."
ST/Amiga Format

"I have no hesitation in
recommending this
program, simple-to-use,
very powerful, flexible,
suit office or home."
APC Magazine

◆ DG CALC ◆

At last, an inexpensive and genuinely easy to use spreadsheet program. Command and menu driven, 512 rows, 52 columns, programmable function keys, text overflow and much, much more. Simple enough for the beginner, powerful and fast enough for the professional.

A calculated
best buy

£39.95

◆ MAILSHOT ◆

A powerful menu-driven mailing program using a unique system for on-screen scrolling of labels. This WYSIWYG (what you see is what you get) system means that any label format you define on screen will be identical when printed.

As well as powerful sorting and searching (search for anything, anywhere), Special Routines include: detection of duplicate labels, surname sorting and many, many more. For business users, MAILSHOT PLUS is also available.

Why set
your sights
lower?

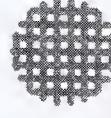
£24.95

SEND FOR
FREE

BROCHURE PACK



ORDER NOW - 24 HR
CREDIT CARD HOTLINE
0395 45059



DIGITA INTERNATIONAL

TOP QUALITY PROGRAMS AT MAGICAL PRICES

All software written in the UK. Prices include VAT & P&P (add £2.00 for export)

◆ HOME ACCOUNTS ◆

Ideal for both home users and small businesses. Supports Workbench and multitasking, simple to use, this complete home accounting package will cater for up to 10 income accounts (e.g., bank, credit card, HP) and 60 categories of household expenditure (e.g., mortgage, rates, food, etc.) with optional budgeting. The program will automatically handle 100 Standing Orders, etc., and allow you to produce your own statements to check bank account(s)/charges, credit etc. ... Process up to 300 transactions per account per year. Comprehensive reporting facilities include: detailed statements, budget forecasts, pie and bar charts, etc.

You'll wonder how
you ever managed
without it!

£29.95

PLEASE RUSH ME BY RETURN (enter quantity)

PRICE Please debit my ACCESS/VISA CARD

No _____

Expiry Date _____

Signature _____

Post to: DIGITA INTERNATIONAL LTD
KELSEY HOUSE, BARNS ROAD,
BUDLEIGH SALTERTON, DEVON EX9 6HJ

Name _____

Address _____

Name _____

Address _____



AMIGA

	BLACK LAMP	CAPTAIN BLOOD	CHAMP BASEBALL	CHAMP BASKETBALL	CHAMP AMERICAN FOOTBALL	DEFENDER OF THE EARTH	MORTVILLE MANOR	SKYCHASE	THREE STOOGES	XENON	RRP	SRP	RRP	SRP	RRP	SRP	RRP	SRP	RRP	SRP
BAAL	39.90	19.94	44.90	20.96	44.94	18.96	44.94	18.96	44.90	20.92	44.90	23.96	39.94	19.96	49.94	21.96	39.94	20.94	29.94	19.96
BATMAN	44.90	22.44	49.90	23.46	49.94	21.46	49.94	21.46	49.90	23.42	49.90	26.46	44.94	22.46	54.94	24.46	44.94	22.46	29.94	19.96
BATTLECHESS	44.90	23.94	49.90	24.96	49.94	22.96	49.94	22.96	49.94	24.92	49.90	27.96	44.94	23.96	54.94	25.94	44.94	23.96	29.94	19.96
CRAZY CARS 2	44.94	21.46	49.94	22.48	49.98	20.48	49.98	20.48	49.94	22.44	49.94	25.48	44.98	21.48	54.98	23.48	44.98	22.48	29.94	19.96
DRAGON'S LAIR (1 MEG)	64.90	33.94	69.90	34.96	69.94	32.96	69.94	32.96	74.90	34.92	69.90	37.96	64.94	33.96	74.94	35.96	64.94	34.96	29.94	19.96
DOUNGEON MASTER (1 MEG)	44.94	22.44	49.94	23.48	49.98	21.48	49.98	21.48	49.94	23.44	49.90	26.44	44.98	22.48	54.98	24.48	44.98	22.48	29.94	19.96
ELITE	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
F1 FALCON	49.94	23.96	54.94	24.98	54.98	22.98	54.98	22.98	54.98	24.94	54.94	27.98	49.98	23.98	59.98	25.98	49.98	24.98	29.94	19.96
FED OF FREE TRADERS	49.90	26.94	54.90	27.98	54.94	25.98	54.94	25.98	54.90	27.94	54.90	30.98	49.94	26.98	59.94	28.98	49.94	26.98	29.94	19.96
FISH!	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
FOOTBALL MANAGER 2	39.90	18.94	44.90	19.96	44.94	17.94	44.94	17.94	44.94	19.92	44.90	22.96	39.94	18.96	49.94	20.96	39.94	19.96	29.94	19.96
GALDAGNON'S DOMAIN	39.90	18.94	44.90	19.96	44.94	17.96	44.94	17.96	44.90	19.92	44.90	22.96	39.94	18.96	49.94	20.96	39.94	19.96	29.94	19.96
HEAVIES OF THE LANCE	44.90	22.46	49.90	23.46	49.94	21.46	49.94	21.46	49.90	23.42	49.90	26.46	44.94	22.46	54.94	24.46	44.94	22.46	29.94	19.96
HOSTAGES	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
HYBRIS	46.90	23.94	51.90	24.98	51.94	22.96	51.94	22.96	51.90	24.96	51.90	27.96	46.94	23.96	56.94	25.96	46.94	23.96	29.94	19.96
JOAN OF ARC	44.94	23.96	49.94	24.98	49.98	22.98	49.98	22.98	49.94	24.94	49.98	22.98	44.94	24.94	49.94	24.94	44.94	24.94	29.94	19.96
KRYSTAL	49.94	23.96	54.94	24.98	54.98	22.98	54.98	22.98	54.98	24.94	54.94	27.98	49.98	23.98	59.98	25.98	49.98	24.98	29.94	19.96
LOMBARD RAC RALLY	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
MANACE	39.90	19.94	44.90	20.96	44.94	18.96	44.94	18.96	44.90	20.92	44.90	23.96	39.94	19.96	49.94	21.96	39.94	20.96	29.94	19.96
PACMANIA	39.90	18.94	44.90	19.96	44.94	17.95	44.94	17.95	44.90	19.92	44.90	22.95	39.94	18.96	49.94	20.96	39.94	19.96	29.94	19.96
PHOTON PAINT	89.94	45.96	94.94	46.98	94.98	44.98	94.98	44.98	94.94	46.94	94.98	44.98	99.94	46.94	94.94	48.98	98.98	47.98	89.98	46.98
POWERDROME	44.90	23.94	49.90	24.96	49.94	22.96	49.94	22.96	49.90	24.92	49.90	27.96	44.94	23.96	54.94	25.94	44.94	24.94	29.94	19.96
PURPLE SATURN OAY	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
ROBOCOP	44.90	22.44	49.90	23.46	49.94	21.46	49.94	21.46	49.90	23.42	49.90	26.46	44.94	22.46	54.94	24.46	44.94	22.46	29.94	19.96
ROCKET RANGER	44.94	24.96	54.94	25.98	54.98	23.98	54.98	23.98	54.94	25.94	54.94	28.98	49.98	24.98	59.98	26.98	49.98	24.98	29.94	19.96
SARGON'S CHESS	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
SPIDERMAN	44.90	23.96	49.90	24.98	49.94	22.98	49.94	22.98	49.90	24.96	49.90	27.96	44.94	23.96	54.94	25.94	44.94	23.96	29.94	19.96
STARGLIDER 2	44.90	21.44	49.90	24.46	51.94	22.46	51.94	22.46	51.90	24.46	51.90	27.96	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
SWORD OF SOON	46.90	23.94	51.90	24.46	51.94	22.46	51.94	22.46	51.90	24.46	51.90	27.96	46.94	23.96	56.94	25.96	46.94	23.96	29.94	19.96
TEENAGE QUEEN	39.00	18.94	44.90	19.96	44.94	17.96	44.94	17.96	44.90	19.92	44.90	22.95	39.94	18.96	44.94	20.96	39.94	18.96	29.94	19.96
THUNDER BLADE	44.94	23.96	49.94	24.98	49.98	22.98	49.98	22.98	49.94	24.94	49.94	27.98	44.98	23.98	54.98	25.98	44.98	24.98	29.94	19.96
TV SPORTS FOOTBALL	49.94	23.96	54.94	24.98	54.98	22.98	54.98	22.98	54.94	24.94	54.94	27.98	49.98	23.98	59.98	25.98	44.98	24.98	29.94	19.96
UNIVERSAL MIL. SIMULATOR	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46	29.94	19.96
WECLE MANS	44.90	22.44	49.90	23.96	49.94	21.96	49.94	21.96	49.90	23.92	49.90	26.95	44.94	22.96	54.94	24.96	44.94	23.96	29.94	19.96
W/P ROGER RABBIT (1 MEG)	49.90	26.94	54.90	27.96	54.94	25.96	54.94	25.96	59.90	27.92	54.90	30.96	49.94	26.96	59.94	28.96	49.94	27.96	29.94	19.96

Pick a pair of games. One from the list down the left side and one from the selection across the top. RRP's are the combined retail prices. SRP's are our total prices for both games including post and packing. Pacmania and Skychase are highlighted as an example, our price is 18.96 for the two. We only sell to members of Special Reserve. If you are not already a member please add the £4.00 membership fee. Please note that we add a 50p surcharge per game for orders placed by telephone. We sell almost all games individually at truly amazing prices. For full details please send a stamped addressed envelope or telephone on 0279 600204. All games individually boxed and new. Membership entitles you to:

Bi-monthly 12-page Buyers Guide, folder & membership card

Sales hotline open 7 days each week and weekday evenings

No commitment - you don't have to buy anything

Instant refunds for delayed products (on request)

NAME _____

ADDRESS _____

POST CODE _____

MEMBERSHIP _____

GAME _____

GAME _____

AMIGA _____

TOTAL _____

£4.00

£

£

Check, P.O., Access, Visa or Amex to:

SPECIAL RESERVE

P.O. BOX 847

HARLOW

CML21 PH

AU101

Give expiry date if paying by credit card.

Special Reserve is a department of Inter-Medias Ltd

The U.K. Amiga User Group

Are you new to the Amiga, finding it difficult to harness the power of this amazing computer?, then what you need is help from the largest group of Amiga enthusiasts in the world outside of the United States.

Members receive:

- Excellent discounts on software
- Technical support and on line help
- Superb hardware reductions
- A bi-monthly newsletter of over 60 pages!
- Access to a PD library of over 250 disks
- Use of an Amiga only bulletin board

DON'T HESITATE - JOIN NOW and start to appreciate what Amiga computing is all about.....

For further details write, enclosing a stamped addressed envelope to:

**The U.K. Amiga User Group,
66, London Road,
Leicester. LE2 0QD.**

Or Telephone - Leicester (0533) 550993

16 BIT CENTRE

MASSIVE DISCOUNTS

ALL PRICES INCLUDE VAT + COURIER

AMIGA EXTRAVAGANZA PACK INC.
Photon Paint, Sonix, 24PD games, Karate Kid 2,
Carrier Command, Goldrunner, Joystick£419

AMIGA STAR PACK INC
11 top games and 24PD games£399

PHILIPS 8833 Stereo Monitor inc. Lead.....£229

OTHER HARDWARE

	£
CITIZEN 120D inc Lead.....	139
CITIZEN 180E inc Lead	179
STAR LC-10 Mono inc Lead.....	289
STAR LC-10 Col inc Lead.....	259
STAR 24/10 inc. Lead.....	339
COMMODORE 1084 inc Lead.....	235
DIGI-VIEW GOLD.....	125
EPSON LO500 inc Lead.....	319

SOFTWARE

	£
THE WORKS .....	.69
WORDPERFECT .....	.75
SUPERBASE PRO .....	.199
KIND WORDS V2 .....	.39
VIDEO TITLER .....	.95
LIGHTS/CAMERA/ACTION.....	.49

16 BIT CENTRE

UNIT 17,
LANCASHIRE FITTINGS,
SCIENCE VILLAGE,
CLARO ROAD,
HARROGATE
HG14AF

TEL. (0423) 526322



ONCE BYTTEN — THE P/X PEOPLE



HARDWARE AT SOFT PRICES

Amiga A500 + Modulator	£369
A500 + Modulator + Tenstar Game Pack	£399
Amiga A5000 + 1084S Monitor	£639
Amiga A501 512K Expansion + Clock/Calendar	£659
Cumana 3.5" Ext. Disc Drive - Switchable	£99
Supra 30Mb Hard Disc for A500/1000 or 2000	£629
Supra 60Mb Hard Disc for A500/1000	£1095
Supra 60Mb Hard Disc for 2000	925
Amiga 2000 (B) inc 1x3.5" Drive	£1155
Amiga 2000 (B) + 1084S Monitor	£1420
Amiga XT Bridgeboard for 2000 (+ 5.25" Drive)	£495
Philips 8833 Monitor	£259
Commodore 1084S Monitor	£259
Citizen 120-D Printer 9-Pin	£137.50
Citizen HOP-40 24-pin COLOUR printer	£439
(Amiga compatible, inc. lead, colour kit, etc.)	
A500 Control Centre (Make life easy for yourself!)	£45
Incontrol Prop joystick/yoke for Flight Sim II	£29.95
Digiview Gold PAL (A500/2000)	£119

Please note:

These prices can be reduced even further by our generous part exchange allowances... Ring for a quote.

Software at Soppy Prices:

X-COPY (OUT MARAUDERS MARAUDER!) OUR PRICE ONLY	£19.95
FALCON — YOU'VE HEARD ABOUT IT, NOW FLY IT! ONLY	£19.95
DUNGEON MASTER — SAY GOODBYE TO YOUR FRIENDS ONLY	£19.95
WHO FRAMED ROGER RABBIT — IT'S THE WAY IT'S DRAWN!	£22.95

FLOPPIES AT FLIPPED PRICES

Our bulk buying enables you to buy best discs at cheap prices. They are all guaranteed for life and supplied with label sets (and sleeves with 5 1/4"). They are all genuinely double-sided but usable on either single or double-sided drives.

3½" DSDD 135pi

10 boards	20	25	50	100	250	500	1000
£11.50	£10.50	£24.50	£47	£69	£220	£425	£725
5½" DSDD 96tpi							
	25	50	100	250	500	1000	5000
	£10.50	£18.50	£32.50	£80	£157	£310	£1500

N.B. All the above prices include VAT at 15%. Carriage is free on discs and software.

Computers are £5, printers £5, monitors £10, UK only.

We are always looking to buy good used equipment for cash, but we'll offer even more in part exchange. Ring for a quick quote.

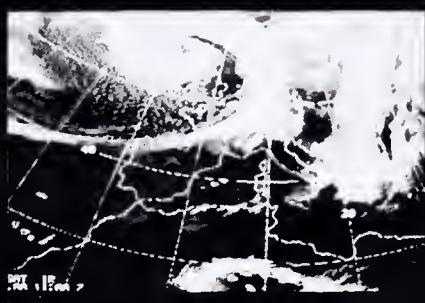
PHONE 01-304 2631 · TELEX 94070538-ONCE G

59 SWANLEY ROAD
WELLING, KENT DA16 1LL



ICS

AMIGA-FAX



PICTURES FROM THIN AIR!

Weather maps, Satellite Pictures, Press photos

Plugs into any short wave radio receiver
Satellite receiver available

£109.95 inc. VAT (£2.50 P&P)

Send for details

ICS Electronics Ltd

PO Box 2, Arundel

West Sussex, BN18 0NX

Tel: 024 365 655

Fax: 024 365 575



Amiga Disk Drives Inside & Out

Abacus

Mark Smiddy casts a critical eye over a new guide to the Amiga's disks

Amiga Disk Drives Inside & Out, is a long book at over 330 pages. At first viewing, you could be forgiven for thinking it actually contains a lot of very useful information on the drives - well, it does, but only up to a point.

The title is in some ways a little misleading - because this is a book which only concerns itself with the software interface to the hardware.

It does not attempt to discuss the electronics involved, or the drive mechanisms themselves for that matter. Nor does it cover hard disks in any great detail, although much of the information is interchangeable; under AmigaOS hard disk partitions and the reset proof RAM disk, RAD: look just like floppy disks.

The structure of the book is split in two uneven parts. The first - and largest being the text itself which is sub-divided in to nine chapters. As is usual with Abacus books, the subdividing of chapters in the contents is clear and well thought out but the index is just short of abysmal - Will they ever learn? Reference books like this require prolific indexes.

The first four chapters very briefly skate over the Workbench and CLI and end up with some examples of file handling in Amiga Basic. Quite why the authors bothered to include such things is not obvious; the word padding comes to mind.

They then launch into a discussion of the internal organisation of AmigaOS. This middle third or so of the book is in fact the only place any useful information is divulged - leaving the poor expert rather starved after what looks like a promising opening.

By chapter six, there comes the interesting reading. This delves into the complex structure of the ROM

itself and explanations of the various block structures used by DOS. This includes fully annotated dis-assemblies of Kickstart 1.2 with the important routines clearly highlighted; the sort of information which virus creating idiots and experts alike crave for. It goes on to explain the checksum and hash sums, how they are used and the connections between the block structures.

After a brief mention of viruses - in which the authors dispel the myths about battery-backed viruses, comes an explanation of one of the fundamentals of DOS - the Trackdisk device. This explains how trackdisk works, what it does and lists the various commands available to the programmer. This information however requires a working knowledge of C to be of any use.

Finally there is an explanation of how to get at the disks without resorting to DOS. This features a discussion of MFM and GCR disk formats and how the Amiga uses MFM to cram so much on a disk - as a general rule, the maximum capacity of a soft sectored MFM formatted disk is about 720k if data security is to be maintained.

This section goes on to explain how it is possible to grab information from the disk by accessing the hardware directly - even so most of the listings are direct disassemblies from the Kickstart ROM so most of the listings would have to be modified. They are only provided to further illustrate the text. This part requires a good knowledge of 68000 assembly language.

The second part of the book forms the appendices, over 120 pages long. They consist of three very large program listings: a disk monitor, drive accelerator and a copying program.

All of these are written in assembler using the non-standard, Abacus AssemPro. Users of other assemblers may find themselves a little in the dark.

Frankly therefore, I do not believe anyone would have the stamina or courage to type in any of these, so Abacus come to the rescue with an optional diskette. Since this disk was not supplied for review I can not comment on it, however.

The usefulness of the programs is dubious too. The drive accelerator for instance, will only work with a 1.2 Kickstart ROM because it uses illegal calls directly in to the ROM itself. As for the monitor there are probably better ones in the public domain; the copier and its associated text I find a doubtful addition, since it could help would-be software pirates.

In the end then, this is a book which falls short of what it was intended to do. Much of the information contained is an uneven mish-mash of good and bad ideas padded out with, at times, a very flowery text. Beginners will find much of it too heavy and experts in places, find it too simplistic.

If this book was cut to half the size and half the price then it would probably be a good buy. Similarly, if it paid more attention to the hardware as an entity rather than an interface, then it would be a concise reference. For all of this books faults though, some may still find a use for it — if they are prepared for a lot of digging.

M. S.

Price: \$29.95
Optional diskette: \$14.95



ROBSON ELECTRONICS

Newcastle House, High Spenn, Rowlands Gill, Tyne & Wear, NE39 2BL
TELEPHONE 0207 543053 FAX NO. 0207 542769

TOP QUALITY AMIGA ACCESSORIES

AMIGA STEREO SOUND KIT

Only £9.95

POST FREE!

Do you want to get the best from your Amiga's amazing stereo sound? Are games and music spoilt by the feeble speaker in your monitor or TV?

Perhaps we can help. We can supply you with a product called the Amiga Stereo sound kit. Now you can connect your Amiga 500 to virtually any Hi-Fi or stereo system for incredible true stereo sound. It's simple really. Your Hi-Fi or stereo will amplify the sound and play it through its own stereo speakers. Our complete package includes special connection leads and interchangeable adaptors that simply plug into your Amiga and Hi-Fi.

Also includes adaptors to connect any stereo headphones, so you don't HAVE to blast everyone's eardrums when you are blasting aliens. Perfect for games and music packages, unleash the stereo music power of your Amiga! The ultimate accessory for perfect sound quality.

AMIGA EXTERNAL DRIVE SWITCHER

Only £9.95

POST FREE!

A switched connector for external disk drive, simply flick the switch and reset to disable your extra drive. Some programs will not work with extra drives connected, this useful product will save you the hassle unplugging, and prevent damaging the connectors on your system. No soldering required, simply plug in between external drive and computer. Essential for trouble free computing.

AMIGA JOYSTICK / MOUSE PORT EXTENDER

Only £14.95

POST FREE!

Sick and tired of fumbling around behind your Amiga to plug in your joystick? Then you need the Joystick/Mouse Port Extender! It extends the mouse/joystick ports to the front of the computer for easier access, and includes bracket for mounting the extended sockets at a more convenient location.

AMIGA STEREO HEADPHONE ADAPTOR

Only £5.95

POST FREE!

Do people complain about the noise when you play games? Then perhaps you should buy our headphone adaptor! It will connect stereo headphones to your Amiga and is suitable for use with any headphones with a 1-inch plug. An extra adaptor is available for 'Walkman' type headphones at £1.50.

TOP QUALITY GOLDSTAR BRANDED BLANK DISKS

Only £14.95 for 10

POST FREE!

Why trust your important data to cheap unreliable disks, when we can supply you with these top quality branded disks. They are 3 1/2" double sided double density, 135TPI, 100% certified error free. You get what you pay for, why spend a few pounds less on cheap rubbish.

OTHER PRODUCTS

AMIGA 500 DUST COVER

ONLY £4.95 POST FREE!

AMIGA 1000 DUST COVER

ONLY £7.95 POST FREE!

AMIGA 2000 DUST COVER

ONLY £9.95 POST FREE!

KONIX SPEEDKING JOYSTICK

ONLY £9.95 POST FREE!

ORDER FORM

Please rush me the following items.

OTY

ITEM

PRICE

I enclose cheque/postal order for £ _____

Please send me your latest catalogue disk (Tick)

NAME _____

ADDRESS _____

POST CODE _____

Please Send To: **ROBSON ELECTRONICS**

Newcastle House, High Spenn, Rowlands Gill,
Tyne & Wear, NE39 2BL

SEVENTEEN BIT SOFTWARE

"That bit better than the rest"

Seventeen Bit Software produce the brightest disc based magazine available for the Amiga containing articles, demos, music, graphics and utilities. We also distribute a massive range of PD discs which are all very easy to use. We can supply commercial software at discount rates and also help with any problems regarding your machine.

SPECIAL OFFER: Get the next EIGHT disc magazines (supplied on release) plus the current issue plus FREE membership for only £10 inclusive. We guarantee satisfaction, once you have seen the disc-magazine you will see why!

JUST GOT YOUR AMIGA??

JUST STARTING OUT??

17BIT Starter Pack still available. 4 pd discs. Life membership plus the latest issue of our disc-magazine, all for just £10 inclusive. "Unbeatable value".

YOU WILL SOON DISCOVER THERE'S
ONLY ONE PLACE FOR ALL AMIGA
USERS

SEVENTEEN BIT SOFTWARE
P.O. BOX 97
WAKEFIELD WF1 1XX
Tel: (0924) 366982

Note: Membership puts you under NO obligations whatsoever. ACCESS and VISA orders welcome over the phone. MON-SAT 9am-5.30pm. We also welcome international members and can supply PD all over the world

AMIGA PD

**Free, Gratis
and
Practically for
nothing**

Stuart Williams tries out some communications and archiving software that will not dent your budget

This month we are looking at Public Domain and Shareware programs for the Amiga communications fan. I am pleased to say that there are a few real gems out there in this field, if you know where to look!

AMICTERM

Those of you who have been following this column regularly will recall that WC covered an excellent communications terminal program called Comm 1.34, back in the May issue. Good news for fans of Comm, and those in search of their first terminal program is that there is a much enhanced 'Comm-Clone' available on Fish Disk 82. This program, AmicTerm, was written by David Salas and Albert Kirk, and like Comm, it is in the Public Domain (a later and more complete version of AmicTerm is now on sale commercially in the United States — this has not affected the PD status of the earlier version reviewed here).

As with its popular predecessor, AmicTerm has Xmodem, Windowed Xmodem and ASCII Text file transfer, and is fully configurable to suit any scrolling text service (ie most Bulletin

Boards and commercial electronic mail service). Operation is by mouse and pull down menus, not only from the menu bar at the top of the screen, but from an extra vertical repositionable bar (not included in Comm), which appears to the right of the screen when the program runs up. This bar enables selection of most functions by pointing and clicking with the mouse, without having to pull down a menu first, and is very useful indeed, being rather faster in operation. Of course, for the purist who likes a plain screen, this 'floating' menu can be tucked out of the way behind the main text window at the click of a button.

Apart from having some extremely stylish file and option requesters, including a completely new auto-dialling menu system, AmicTerm has a number of 'bells and whistles' which make it easier and more pleasant to use than Comm. This particular version, .50 (beta), includes a script control language, a choice of display beep or audible beep for alerting you to various program actions and warnings, and autodialling. I would be interested to find out if there is a later version available, as one of the unimplemented features in this ver-

sion is Zmodem file transfer, which is somewhat more efficient than standard Xmodem, but less commonly used. AmicTerm's only disadvantage (as with all US originated comms programs) is that the baud rate options do not include 1200/75 baud, which means you will not be able to use a cheap 1200/75 only modem with it. Those with speed buffered modems will have no problems, of course.

In all, then, AmicTerm could be the program for you if you are looking for a good, practical terminal with plenty of facilities and stylish design. A significant improvement on Comm 1.34, and well worth acquiring.

Vt100

Fish Disk 47 contains an interesting little terminal program called Vt100. As you might imagine by the title, it is a DEC VT100 terminal emulator! How comprehensive the emulation is, I am not sure, since we do not have a DEC minicomputer to hand to link up. However since the program runs in hi-res interlace mode, it seems likely that it is at least capable of the 132 column display beloved by DEC.

While Vt100 is a little sparse on

features compared to Comm 1.34 or AmicTerm (it has no autodial menu or telephone directory, for instance), it does include xmodem file transfer, and Kermit file transfer, which means it could prove useful to the student or educational user who has access to a university minicomputer or mainframe from home. Vt100 is fully configurable for all the popular speeds, except like AmicTerm, 1200/75 baud.

While Vt100 will not set the world alight, this program by Dave Wecker could prove complementary to more powerful programs such as AmicTerm, in view of Vt100's inclusion of Kermit file transfer.

This version of Vt1000 is 2.4, and is in the Public Domain.

ARC

There can be few communications fans with Amigas, indeed with many different computers, who have not heard of ARC, the ubiquitous file archiver which enables you to compress a whole series of files by as much as 30%, and seal them up within one library file. The great advantage of ARCHived files is that not only do they take up much less space on a disk, as well as occupying one directory entry instead of many, but they are much simpler and quicker

to download from, and upload to, bulletin boards and other online remote computer services, as a consequence of this.

The great advantage of ARC is that it is much the same from machine to machine, so that files ARCCed on the IBM PC, for instance, may be unARCCed on an Amiga. Its sole disadvantage on the Amiga is that it can only cope with CP/M and MSDOS filename conventions of a maximum of eight characters plus a three character suffix, therefore lengthy Amiga-style filenames must be amended before being ARCCed.

The version of ARC on Fish Disk 70 is Amiga version 0.23, which is a port of ARC version v5.0, binary only, without source code. The program, published as Shareware by System Enhancement Associates, was written in its Amiga version by Raymond Brand, and the publishers suggest a \$35-\$50 donation if you use the program regularly. Certainly, ARC is an essential tool for the Amiga comms user, particularly if you frequent the bulletin boards and the depths of CompuNet in search of PD software!

ZOO

Similar in concept to ARC, ZOO is used to create and maintain collections of files in compressed form. It uses a Lempel-Ziv compression algorithm that gives space savings in the range of 20%-80% dependent on the file data type, and is therefore potentially rather more efficient than ARC in this respect.

It includes several features lacking in ARC, mainly to do with manipulation of files within the archive file, but perhaps the most important of these features to the Amiga user is the fact that it allows file/path names up to 255 characters in length!

The version of ZOO on Fish Disk 87 is 1.42A, binary only, and is Shareware. The original author is Rahul Desai, and the Amiga port was implemented by Brian Waters.

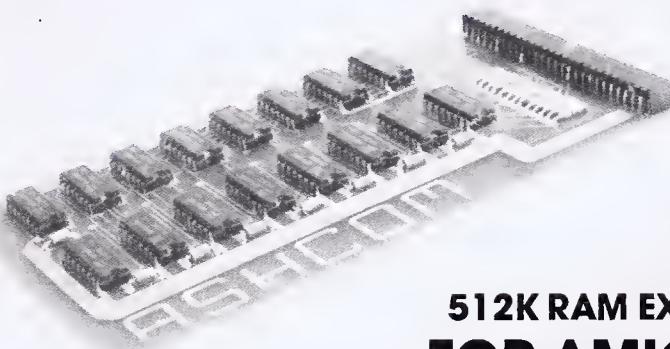
All the above software was supplied by George Thompson Services of Arran, Tel: (077082) 234



NEW ASHCOM



VISA
(0530) 411485



512K RAM EXPANSION
FOR AMIGA 500
ONLY £99.95 INC VAT

PHILIPS 8833 COLOUR MONITORS
£200 INC VAT
LIMITED STOCK

ONLY FROM ASHCOM, 10 THE GREEN, ASBY-DE-LA-ZOUCH,
LEICESTERSHIRE, LE6 5JU. TELEPHONE (0530) 411485

ASHCOM IS A TRADING NAME OF ASHBY COMPUTERS AND GRAPHICS LTD

A black and white photograph of a computer keyboard. A large, semi-transparent watermark is overlaid on the image, displaying the text "AMIKIT IS HERE!" in a bold, sans-serif font, repeated seven times vertically down the center of the keyboard.



**No more frustrated hours spent
staring at your computer screen! No more
blundering through the Workbench or CLI — the
ultimate aid for novices and experts alike has arrived!**

Step by step, AmiKit helps you explore and benefit from the awesome power of your Amiga. From the most basic to the most complex commands. AmiKit teaches how to gain control and confidence using your machine, whether it's an A500, 1000 or 2000. And what's more, AmiKit includes over 30 Public Domain Software programs, including: workbench 1.3; a virus checker; a database; a spreadsheet; a word processor; games; and much more!

Amikit is one of the most effective ways to successfully navigate your way throughout the Workbench and CLI. As a special introductory offer from Amiga User International, you can get Amikit from £19.95 (plus £1.50 for shipping) — £5 off the recommended retail price — an amazing bargain! When we reviewed Amikit, we were extremely pleased with the package, and we know you will be, too!

To Amiga User International
40 Bowling Green Lane,
LONDON EC1R 0NE

I would like to purchase AmiKit at the special price of £19.95 + £1.50 p&p (£21.45).

Please make cheques payable to
CROFTWARD LIMITED or debit
my ACCESS account:

Expiry date

Signature

Name _____

Address

Telephone

We obtain the AmiKit directly from the U.S.A., so please allow 28 days for delivery.

GETTING YOUR CIX

Stuart Williams offers advice on a public service that can get you communicating with developers and others in the Amiga avant-garde.

THIS month I link up, log on, and look into what is to be found for the Amiga user on the 'Compulink Information exchange' in the first of a communications mini-series looking at some of the popular remote database services which you can access with your Amiga, modem and terminal software via your telephone lines.

What is the Compulink Information exchange (CIX for short)? Well, the CIX system is run as a facility for members by the Compulink User Group, a commercial club whose main claim to fame is their enormous library of (mainly MSDOS) Public Domain and Shareware software, which can be purchased by members for \$3.45 per disk. It is something of a communications hybrid, which while maintaining the professional feel synonymous with the US commercial hobbyist services such as The Source and Compuserve, is rather smaller and more limited in scope, owing much to the philosophy of the 'bulletin board' type of non-commercial remote computer system, and retains the friendly, 'clubby' feel of the hobbyist bulletin boards. Unlike a bulletin board system, however, CIX is a multi-user, multi-port dialog system.

CIX is not intended to be a huge database of information (although it does contain the international 'Newsbytes' news files), or an international electronic mail service. It does provide the opportunity for computer hobbyist, student and professional to get together in congenial fashion, swap hints and tips, and have long and complex 'conferences' on various computing topics, which range from the latest game to obscure bugs in C

compilers! Those familiar with the BIX (Byte Information exchange) system run on a larger scale by the huge US magazine Byte will know what to expect, as CIX uses substantially the same CoSy computer conferencing system.

"Conferences take the form of lengthy linked chains of messages, replies and comments categorised by subject subheadings."

This multi-user Unix based system allows direct chat between users (who are able to tell who is online and redirect input to them), and also allows comment and expression of opinions (which can sometimes become very heated!) via the conferences. Conferences are a somewhat more sophisticated version of the type of message areas found on traditional non-commercial bulletin board systems, and take the form of lengthy linked chains of messages, replies and comments categorised by subject subheadings. The range of these subjects is wide, covering many kinds of computers, software, programming and to a lesser extent topics of general interest, such as literature and journalism. Of course, if you feel a subject is missing, then you are quite welcome to stand on your soapbox and start up your own conference, but be prepared to put a little effort into stirring up interest and keeping things tidy!

The Amiga is well catered for, and has several linked conferences with

respect to hardware, software, news, etc. One of the great advantages of CIX is that many of the Amiga software developers and journalists have CIX accounts, and generally speaking they are a very helpful lot! If you look around you may find Jez San of Star-glider fame, as well as programmers from other companies, or even Amiga User International journalists! Certainly, if you want the latest news about the Amiga hardware and software, then short of dialling the US, CIX is the place to be. Don't let this put beginners off though, as much good advice is to be had at all levels of experience, and all are welcome.

While CIX is not an electronic mail service, and has no outgoing ports to other systems, it does have a sophisticated internal mail system, which allows you to prepare lengthy messages and replies to messages to be prepared while offline using your favourite text editor (or ASCII word-processor) such as Micro EMACS, Scribble or any other program which allows for the saving of a straight ASCII text file. Your terminal software can then send your text file along the 'phone line to CIX after you have logged on, much faster than you can type it in, saving a considerable amount of time, and therefore reducing your telephone bill! Likewise, you can save time and money by receiving messages and information onto your disk in text file form, and reading, editing or printing it later offline.

"It is possible to set up your Amiga to dial up and log on to CIX, collect your mail and log off again, in the middle of the night if you wish!"

Like the majority of other bulletin board or email systems, CIX uses a scrolling text system; while this does not look as pretty as, for instance, CompuNet or Prestel, it does mean

Amiga P.D. Software Disks

Accessories

£2.50 each or £19.99 for 10 including plastic box

DEMOS & DISPLAY HACKS

HOLSTEN PILS DEMO
AMAZING DEMOS 2
AMAZING DEMOS 3
AN ALMIC 2
UGLY MUG DEMO
CATWALK
HORROR DEMOS
PLUG OLE
TECH TECH
SS20
TRAZER DEMOS
WORKBENCH DEMOS
INSTRUMENTS 1 } FOR USE WITH
INSTRUMENTS 2 } WORKBENCH DEMOS
INTRO DISK 1
THAMES T.V. & DEMOS
MICHAEL JACKSON
NEMESIS
AMAZING DEMOS 1
JEWELS COLLECTION
MONOPOLY
TECHNATION
PHENOMENA DISK
MERLINS DISK
RATT DEMOS
MICHAELS SPLODGE DISK
MILLER LITE ADVERT
FAMOUS PD HACKS
FAMOUS DEMO
VIDEO EFFECTS 3D DEMO **
ANIMATOR APPRENTICE DEMO **
INTERCEPTOR DEMO
DEFENDER OR THE CROWN DEMO
NETWORK 1 } ** BOTH DISKS REQUIRED
NETWORK 2 } **
ROCKET RANGER DEMO

* 1 Meg or more only

FISH AMICUS FAUG & ICPUG

FISH 52
FISH 53
FISH 64
FISH 66
FISH 87
FISH 106
FISH 111
FISH 120
FISH 137
GOLDFISH 1
GOLDFISH 2
GOLDFISH 3
FAUG #59
FAUG #26
AMICUS 6
AMICUS 14
AMICUS 18
ICPUG DEMOS 2
BEST OF AMICUS 1
BEST OF AMICUS 2
BEST OF AMICUS 3
BEST OF AMICUS 4
ICON DISK
VIRUS KILLERS DISK

GRAPHIC DEMOS

SLIDESHOW #1
SLIDESHOW #4
ANIMATIONS 2
UNICYCLE
PHASE IV SLIDESHOW
JUGGLER & DEMOS
DIGIVIEW
DIGIVIEW 2
DIGIVIEW 3

ROADBLOCK **
RGB & PROBE SEQUENCE **
JARRE/DEAN
MAGIC
KNIGHT DEMO **

MUSIC AND SOUND

MUSIC INTROS 1
BEST OF SONIX
ROBOTek
GRANDMIX 1
NOW MUSIC 3
MUSIC INTROS II
NOVATRACK VOL 2
TIFFANY
EARMASHERS
JUKEBOX
SONIX JUKEBOX 2
JUNGLE COMMAND
SONIX JUKEBOX 3
SONIX JUKEBOX 4
SONIX JUKEBOX 5
DIGITAL SOUNDS
MIAMI VICE
MIAMI VICE 2 } ALL 4 DISKS
MIAMI VICE 3 } REQUIRED
MIAMI VICE 4 }
NOW MUSIC 5
SONIX JUKEBOX No 1
SONIX CLASSICS
PET SHOPS BOYS SONIX
ALEX
ALF MIX 2
SONIX JUKEBOX No 2
LOADSAMONEY
NOW THATS VOL 1
POP MUSIC DEMO
YELLO MIX
RUN DMC
LAND OF CONFUSION

3½" DISKS

Inc Labels

100% Certified. D/S D/D 135tpi	10	50	100
	£9.95	£47.50	£90.00

Disk Boxes

3.5" disk box holds 40	..... £6.95
3.5" disk box holds 80	..... £8.95
3.5" disk box holds 120	..... £10.95
Posso deluxe disk box	..... £15.95
holds 150	

Joystick/mouse extension lead	..... £4.95
Mouse mat soft, red grey or blue	..... £3.95
Mouse mat hard, grey only	..... £4.95
3.5" disk drive cleaner kit	..... £3.95
Printer cables 1.2m	..... £6.99
Printer 3.0m	..... £8.99

ALL PRICES INCLUDE V.A.T., POSTAGE AND PACKING IN U.K. ALL ITEMS CARRY A 12 MONTHS NO QUibble GUARANTEE.
LATEST LISTS SENT WITH EVERY ORDER OR SEND S.A.E. STOCKS SUBJECT TO AVAILABILITY. E&OE.

CHEQUES AND POSTAL ORDERS MADE PAYABLE TO:

Magnetic Media

1 Victoria Arcade, Aldergate, Tamworth,
Staffs, B79 7DL. Tel: 0827 59566

P
U
B
L
I
C

SOF7 - PROBE DEMO, Best Ever
SOF9 - PERFECT SOUND
SOF11 - MIDI (CZ) DISK
SOF13 - MANDLERBOT Explorer
SOF15 - CLIP ART DISK
SOF17 - RAY TRACING SET
SOF20 - NASA SLIDESHOW
SOF27 - COMMS DISK

SOF42 - CHINESE CHECKERS
SOF43 - AMIGA SPELL CHECK
SOF46,7,8 - SONIX TUNES
SOF50 - PRINTER DRIVERS
SOF54,5 - NEWTEK DEMO
SOF56 - DOCS DEMONS DEMO
SOF68 - CLASSIC Board Games
SOF69 - CLASSIC Arcade games

SOF70 - CLASSIC Amiga Demos
SOF78 - PACMAN GAME
SOF79 - SAM FOX SLIDESHOW
SOF86 - Jungle command Music
Plus we have so many demo's
we couldn't list them here. If you
like graphics and music then
send for our catalogue - NOW.

We also have all the follow
ing collections:
PANORAMA, FAUG
SLIPPED DISK
AMICUS
FRED FISH
APDC collection

D
O
M
A
I
N

PRICES
(each Inc.)
1-5 disks £3.00
6-10 disks £2.75
11 or more £2.50
Debut 1st per disk price if you send your own blank disks. Cheques or Postal Orders payable to SOFTVILLE buy any 10 pick 1 free

HAMMERSOFT

AMIGA MAIL ORDER SPECIALIST

LEISURE

Aargh!	13.50	Purple Saturn Day	16.50	LANCELOT	16.50
AFTERSURFER	18.50	Road Blasters	18.90	Leatherboard Bridge	16.50
LAZARUS	18.50	ROBOCOP	18.90	Legend of Swindon	16.50
BATTLE CHESS	17.90	ROBOCOP	18.50	INDIAN CHIEF'S HORSE	18.50
Barbaren (Palace)	13.25	ROCKET RANGER	20.50	RETURN TO ATLANTIS	17.50
BARBARIAN II	13.50	SENTINEL	13.50	ROBOFIRACADE	18.50
BATMAN	13.50	Sierra's	13.50	SENTRY	13.50
Better Dead Than Alive	13.99	Snow Ball	7.50	See Vixens From Space	16.90
Bombard	15.50	Sky Chase	13.50	Tangle Wood	13.25
Buggy Boy	16.25	Space Invader	6.50	The 8th Dimension	13.50
CAPTAIN BLOOD	13.99	Star Wars Racer	3.50	TRAIL OF LORE	16.90
Chubbs Greed	15.50	SPEEDBALL	16.50	Trivial Pursuit	13.50
Crash Garrett	15.50	STARGLIDER II	6.50	Ultima III or IV	16.90
Disk Thieves Challenge	15.50	Star Ray	3.00	Ultima IV or V	16.90
DOOM OF DEATH	16.50	Star Trek with BORO	16.50	UNIVERSAL MILITARY SIM	16.50
DRACONINNIS	16.50	SUPERHANG-ON	18.50	Ward Dreams	16.50
DRAGONSLAIR	15.00	SUPERMAN	16.50		
DRILLER	16.50	SWORD OF SODAN	13.50		
ECOLOGY	15.50	TECHNO COP	15.50		
Eliminator	16.50	Terrordex	16.50		
ELITE	16.50	Three Stooges	18.50		
Empire Strike Back	16.50	THUNDERBLADE	18.50		
FERNIE'S DESMUSTIDE	16.50	TURBO COP	13.50		
FUSION	17.50	ULTIMATE FOOTBALL	16.50		
Futura	12.50	VIRUS	13.50		
Galactic Conqueror	18.50	WANTED	13.50		
Garrison II	18.90	Where Time Stood Still	16.50		
Hard Ball	16.50	Whirlgig	13.50		
Hongkong	16.50	Zygar	13.50		
Ikan Warms	16.50				
INTERNATIONAL KARATE	15.50				
INTERNATIONAL SOCCER	15.50				
JAG	15.50				
LOMBARD/RAC RALLY	16.50				
Mach1	13.50				
Marsian Raiders	16.50				
MANSSELL GRAND PRIX	17.50				
MANECA	13.50				
MARSHAL	13.50				
NEBULUS	15.50				
NETHERWORLD	15.50				
OPERATION WOLF	16.50				
OUTCAST	16.50				
PACMAN	13.50				
Pandora	13.50				
Phantom of the Opera	17.50				
PIONEER PLAGUE	16.50				
Platoon	16.50				
P.O.W.	20.50				
Powderdrone	17.50				
PUPPY'S SAGA	17.50				
KRISTAL	19.99				

ADVENTURE & SIMULATION

Adventure for the Amiga	17.45	Amiga 500	13.50
Battle for the Empire	17.90	Comp Pro 500	13.50
Battle Chess	17.90	Comp Pro Extra (clear)	14.90
Burnardo Project	16.25	Quicksilver II Turbo	12.50
CARIBOU COMMAND	16.25		
CHAKRA QUEST	16.50		
Corruption	16.50		
DUNGEON MASTER (I MEG)	16.50		
FEAR FACTORY	16.50		
FEDERAL BUREAU OF INVESTIGATION	19.90		
Federation of Free Traders	22.50		
Ferrari Formula 1	17.90		
FSI	16.50		
FSI Star Sm	16.50		
Scenery 7 or 11	13.50		
Space Station	13.50		
HEROES OF THE LANCE	18.50		
INTERCEPTOR	17.90		
IRON LORD	17.50		
IRON SKY	17.50		
External 3½" Mag Drive	17.90		
Game Doctor	17.90		
Game Doctor X 10	19.99		
DISK BOX HOLDS 50	19.99		

QUALITY JOYSTICKS

AMIGA 500/TOPPER Pack	13.50
AMIGA 500/TOPPER Pack	13.50
Asystar 500 S.C. Pack	39.99
Quicksilver II Pack	41.90
ASYL 1/2 Map Express Clock	19.90
External 3½" Mag Drive	17.90
Game Doctor	17.90
Game Doctor X 10	19.99
HARDWARE UK only	17.90
AMIGA A500/TOPPER Pack	13.50
AMIGA A500/TOPPER Pack	13.50
Asystar 500 S.C. Pack	39.99
Quicksilver II Turbo	12.50
Light gun	45.00

Send cheques/postal orders to:

HAMMERSOFT

Dept A, 33 Mill Road

Hethersett, Norwich

Norfolk NR9 3DS

*AVAILABLE ON RELEASE

Prices are all inclusive with
1st CLASS POST IN THE UK

EEC Please add £2.00 per item

Orders/Enquiries: TEL: (063) 812416

RETURN OF POST SERVICE ON STOCK ITEMS

any 5 PD
disks
5 DIS Blank
disks
Library
Case (10)
only £19.50

send for
our FREE
Catalogue
of over 450
disks - quote
AMIGA

SOFTVILLE PD SERVICE
55 HIGHFIELD AVENUE
WATERLOOVILLE HAMPSHIRE
PO7 7PY. Tel 0705-288509

that you have a vast choice of terminal software available, from the cheap and cheerful Public Domain offerings (Comm 1.34 and AmicTerm are highly recommended) to the sophisticated commercial packages such as A-talk III. The advantage of the commercial programs is that many of them are able to run your system unattended after being programmed in 'script language', this means it is possible to set up your Amiga to dial up and log on to CIX, collect your mail and log off again, in the middle of the night if you wish! If you require this facility, it may be worth the £50-£100 it will cost you for a commercial programmable comms system.

What is needed to access the Compulink Information exchange? Well, apart from your Amiga, you need a modem and terminal software. CIX accepts modem transmission speeds from 300 baud (V21) up to 2400 baud (V22bis) full duplex, with full MNP error correction if your modem or software has that facility – this means no rubbish on screen from a bad 'phone line if you are so equipped. You are also able to use a cheap 1200/75 baud modem (V23) if your software has the special split baud rate capability which is unique to UK written terminal programs. If you are the proud possessor of a Hayes compati-

ble 'intelligent' modem, you will have no problems, as these systems are speed buffered, which will allow the computer to communicate with the modem at 1200/1200 baud, and output to the remote system (CIX) at 1200/75 baud – the Miracom WS4000, Pace Linnet or Microlink Multispeed are commonly available examples of this kind of device. This will allow you to use any US originated comms program with a UK service at 1200/75 baud. See the November and December issues of Amiga User International for more detailed information on modems and communications software.

***A cheap second hand
300 baud modem with
manual dial will work
with a Public Domain
program and get you
online to CIX for as little
as £25.***

All this may look expensive, and it can be a major investment if you want maximum sophistication for your comms activities, whether on CIX or otherwise. Not to worry for those of you on a budget, though, as a cheap second hand 300 baud modem with

manual dial will work with a Public Domain program and get you online to CIX for as little as £25! While this offers little in the way of automation, it will at least give you a taste of comms without committing you to a spending spree.

Since CIX is based on a London number, access will naturally be cheaper for those within local call range of the capital. Those on low-cost routes (check your 'phone book) to London will likewise not find charges too expensive. However, if you have to dial normal long distance, you may find CIX a little expensive to use for long periods. The system does, however, have Mercury X.25 data line access from most parts of the UK, and this could provide a significant saving if you anticipate regular long distance calls.

Who will benefit most from CIX? The professional or serious Amiga user into programming and hardware or software applications, the comms enthusiast, and the active hobbyist will love it. The games fanatics, however, will find little to interest them. If you want to chew the fat with those in the know, and be in on the leading edge of Amiga activity in the UK, however, CIX is probably the place for you!

Details of current CIX subscriptions can be had by contacting Compulink User Group on 01-390 8446.

S.W.

continued from page 48

font that resembles the conventional typeface Metro Medium. Its 12 point size was designed for desktop publishing use with the Amiga's medium resolution mode. As such, it produces a clean-looking result that is reasonably easy to read.

There is also a 29 point Metro Demi Bold that resembles that once popular newspaper typeface Metro Black, and a 34 point Metro Display. This is a heavy type with a 1930s Art Deco tinge to it. Both are good display faces that could prove useful. Metro Demi Bold is rather spoilt by the jaggedness of its outlines, so that Metro Display looks better, if somewhat blocky, on paper.

Leander, in 27 point, is a thin sans serif type that resembles in many respects one of the most successful of modern typefaces, Adrian Frutiger's Univers. It could have been simpler and more effective though – its lowercase 'y' is extremely ugly.

Sausage and Spot are both very heavy sans serif faces, of the sort that the Victorians used on posters. Sausage is in 31 point which is not really big enough. Its bulk would look more effective if it were larger. Spot is slightly bigger, though the size is made up by adding a white

outline to the letter, giving a three dimensional effect.

The final two sans serif fonts are the sort that could only exist in an electronic medium. Raster, in 28 point, is a coarse face with serrated edges. It is extremely unpleasant and I cannot think of any circumstance in which I would wish to use it. Scanner is much better, although it is of limited utility. Each character is formed from a sequence of lines which, used in the right circumstances, look good and print well.

The two most popular sources of alternative bitmapped fonts for the Amiga so far have been Earthbound Fonts' inexpensive conversions of public fonts that were originally created for Apple's Macintosh computer, and the three volumes of Zuma fonts.

Both provide better value than Media Line's Amiga Font Disk 1. Earthbound Fonts offer a far greater variety and number of typefaces. Their limitation, like Media Line's, is that most of the fonts come in a small or medium size.

Zuma's fonts are limited to three to each volume. But each one comes in six sizes. And each size comes in two versions so that their proportions will match the Amiga's different

screen proportions. Zuma's fonts tend to range from 20 to more than 100 points, so that they are for printing headings rather than the body text. But Media Line's two body-text fonts are no better than the Granite, Marble or Serpentine fonts supplied with ProWrite.

For titling videos Media Line's font collection cannot compete with such specialised programs as Aegis' Video Titler or Zuma's TV*Text and TV*Show, although it is much cheaper. It's a package that rather falls between every stool. Most of the fonts are run-of-the-mill stuff displaying some of the less attractive aspects of bitmapped graphics. Most, too, are supplied in only one size. Of the more novel fonts, only Spot and Scanner offer anything that cannot be obtained elsewhere and which begin to exploit the possibilities of computerised printing.

J. W.

Price: \$34.95 (US)

Contact: Free Spirit Software, P.O. Box 128, 58 Noble Street, Kutztown, P.A., 19530, Tel. 215-683-5609.

OFFICIAL COMMODORE/AMIGA DEALER

COMPUTERS

Amiga B2000 only.....	976.35
Amiga B2000 + 10845 Colour Monitor	1229.35
Amiga 2088 PC/XT Bridgeboard + 5.25" Drive	481.85
Amiga 500 Inc TV Modulator	359.00
Amiga 500 + Mod 1 Games Pack	399.00
Amiga 500 + Parallel Port Board Dragon's Lair	496.00
Amiga 500 + Commodore 10845 Colour Mon	622.00
Amiga 500 + Philips 8823 Stereo Colour Mon	609.00

PRINTERS

Citizen 120D Parallel	129.95
Star LC 10 Parallel	219.00
Star LC 10 Parallel Colour	249.00
Star LC24-10 24 pin Multi-font 170/57 cps	329.00
All Okidata consumables normally in stock	PHONE

MATERIALS

Commodore 10845 Colour Monitor inc lead	778.00
Philips 8823 Stereo Colour Monitor inc lead	269.00
Philips 7502 Green Screen Monitor	85.00

MODEMS

Pace Modem + Software for Amiga V2/23 Prestel, BBS etc	239.00
--	--------

DISK DRIVES

Amiga 2092 PC 20Mb Hard Disc Drive	458.85
Cumana 1045 Disk Drive	95.00
Commodore CASES Mains Pwr'd Disk Drive	124.95
Supra 30Mb External Hard Disk for A500/1000	829.00

MISCELLANEOUS

Amiga 501 512K RAM/Clock Expansion	139.00
Unbranded 3.5" Disks in Library Case	13.95
Surge Protector 13A Plug	12.95
Surge protector 3-Way Adaptor	15.95
Amiga DOS Reference Manual	22.95
minidisk to COSTGENLOCK!	113.85
Printline Generic Font	259.00
Printer Buffer 64K	169.00
Addison Wesley Amiga Ref Manuals	PHONE

SOFTWARE

Superbase Personal	49.95
Superbase Personal 2	69.95
Aegis Video Titter	86.50
Deluxe Photolab	56.00
DigiView Gold	119.95
Kind Words 2	49.95
KidsWords 2	79.00
ViziWrite	169.00
Word Perfect	185.00

ALL PRICES ARE INCLUSIVE OF VAT AT 15%

CARRIAGE £5 (EXPRESS £10). SOFTWARE AND SMALL ITEMS FREE

Prices subject to change without notice

E&OE

Delta Pi Software Ltd

8 Ruswarp Lane, WHITBY, N. Yorks. YO2 1ND.

Tel: 0947 600065 (9am-7pm)

PHOTOFILe AMIGA DIGITISING SERVICE!

SEE YOUR FACE ON YOUR AMIGA!

You know how it is — you've got the pictures and you've got the paint programs but not the two together. Well, now's your chance to unite your holiday snaps, drawings or D & D monsters with Deluxe Paint, Photon Paint, Kind Words, in fact, any paint program or graphic word processor currently in use with the Amiga.

How? Simple — contact Photofile. We bring you a comprehensive postal digitising service at a pocket money price. Just send us your photographs, pictures or illustrations, stating the resolution and format required and we'll convert them for display on your Amiga.

- * Any Amiga resolution — including halfbright and enhanced HAM+ in full PAL overscan.
- * All photographs and pictures returned promptly and unharmed.
- * FREE public domain slideshow utility included on every disk, displays pictures in all resolutions, PAL or NTCS.
- * Pictures are returned in a ready to go slideshow format. Just pop the disk into your drive and all pictures are displayed automatically in sequence.
- * Roughly 10 HAM, high-res or halfbright pictures per disk or 14 10-res pictures.

Colour pictures £1.50 each, black and white £1.00 plus 60p postage and packing per order. Sorry but Photofile must insist on supplying the disk (top quality DS/DD) at £2.00 as a precaution against viruses. Please make cheques/P/Ss payable to PHOTOFILe.

**PHOTOFILe, Dept/AUI, PO BOX 196,
Nottingham NG2 4GQ Tel. 0602 481997**

We regret that Photofile cannot accept responsibility for photographs and pictures lost or damaged in the post.



Desktop Graphics Ltd.

THE Amiga Bureau

Professional Linotronic 300
output to Paper, Bromide, Film
or Colour Separations
from Amiga disks.

For price list
and further information
CALL NOW
01-538 9299
Fax: 01-538 9155

UNBEATABLE COMMODORE HARDWARE OFFERS

AMIGA 500 SUPER PLUS PACK With FREE TV Modulator, Mouse, Mouse Matt, 10 Top Quality Games, Two Utility disks containing the latest Virus Killers, Copiers, Disk Doctor and much more! Deluxe Paint I, Amiga Tutorial, Workbench VI.3, and AmigaBASIC disks + 2 Manuals

AMIGA 500 SUPER PACK With FREE TV Modulator, Mouse, Mouse Matt, 6 Top Quality Games, Deluxe Paint I, Amiga Tutorial, Workbench VI.3, AmigaBASIC disks, + 2 Manuals

AMIGA 500 ECONOMY PACK With FREE TV Modulator, Mouse, Mouse Matt, Deluxe Paint I, Amiga Tutorial, Workbench VI.3, AmigaBASIC disks, + 2 Manuals

AMIGA 500 + 1084 STEREO MONITOR AND SUPER PACK Only £625 (inc. VAT)

COMMODORE PC-I With FREE Mono Monitor, Able One — Integrated Spreadsheet, Database and Word Processor, 10 Blank Commodore Disks, GW-BASIC V2.3, MS-DOS V2.3.

Should your Amiga 500 or PC-I go wrong within 25 days of purchase then we will replace it with a NEW computer.

All hardware items have a 1 Year Warranty from the Purchase Date.

All hardware is fully tested before dispatch.

All hardware will only be sent by Courier — Next Day £8 per item (Monday to Friday/Saturday is Extra). Two Days £6 per item

COME AND HAVE A DEMO AT: TOP FLOOR, 160 DRAKE STREET (DRAKE HOUSE), ROCHDALE, LANCASHIRE. (DO NOT SEND MAIL ORDERS TO THIS ADDRESS)



ACCESS/MASTERCARD/VISA CARD ORDERS/ENQUIRIES TEL 0706 43519
Send Cheque/Credit Card Details to: 16-Bit Software (Dept CCI),
24 Bankfield Lane, Norden, Rochdale, Lancashire OL11 5RJ

Public Domain Software for the Amiga

from £3 per disk all inclusive

- ★ Over 500 disks!
- ★ Membership not necessary
- ★ Fast service

We have one of the largest collections of PD software for the Amiga in the UK.

We currently stock:

- FISH 1-161
- AMICUS 1.25
- SLIPPED DISK 1.14
- FAUG HOTMIX 1.75

All the above are £3 each + 1 FREE when you order 10

We also have

- PANORAMA 1.71
- AUGE 1-25
- T-BAG 1.23

2 catalogue disk sets available at £5 each which give details of the above collectors

Write or Phone for a FREE List

HARDWARE

CUMANA EXTERNAL DISK DRIVE £88.95

AMIGA A500 £355

AMIGA B2000 £385

DISK DRIVE £99.95

All prices are fully inclusive of VAT

PC Software now available for £54.95

Please write or phone for a list

★ JOIN THE CLUB! Interested in joining our user club?

Write or phone for details ★

THE AMIGA PD LIBRARY
Dept AC2, 140 Rushdale Road, Sheffield S8 9QE
PD Hotline 0742-588429 (9am-9pm)



Advertisements are expected to conform to rules and standards laid down by the Advertising Standards Authority. Most do. The few that don't we'd like you to write in about.

And if you'd like a copy of these rules for press, poster and cinema advertisements, please send for our booklet. It's free.

The Advertising Standards Authority.

We're here to put it right. ✓

ASA Ltd., Dept. Y, Brook House, Torrington Place, London WC1E 7HN

This space is donated in the interests of high standards of advertising.

COMPUTER-WIZE

REGISTERED COMMODORE PREMIER DEALER
COMMODORE AMIGA A500 — VARIOUS PACKAGES

**FROM £370.00
TELEPHONE FOR DETAILS**

CUMANA 1MB 3.5" DISK-DRIVE	£99.95
AMIGA A501 CLOCK CARD/RAM EXPANSION	£139.00
DIGIVIEW VIDEO-DIGITISER WITH ADAPTOR	£129.99
COMMODORE 1084S STEREO MED RES COLOUR MONITOR	£279.00
*ABOVE MONITOR IF PURCHASED WITH COMPUTER	£250.00
VISION 4200 COLOUR MED RES COLOUR MONITOR	£199.00
*ABOVE MONITOR IF PURCHASE WITH COMPUTER	£194.00
CITIZEN 120-D 9-PIN DOT-MATRIX PRINTER	£149.00
*ABOVE PRINTER IF PURCHASED WITH COMPUTER	£139.00
CITIZEN HOP 4524-PIN, 136 COL, SPECIAL OFFER SAVE £369.00!	£480.00
PRINTER STANDS	£9.99
PRINTER CABLES (25-WAY CENTRONICS)	£12.99
PRINTER PAPER (1000 SHEETS CONTINUOUS TRACTOR-FEED)	£8.99
PRINTER PAPER (2000 SHEETS CONTINUOUS TRACTOR-FEED)	£16.99
AMIGA STEREO SPEAKERS WITH BUILT-IN AMPS AND PSU	£25.00
CRYSTAL MICROSWITCHED JOYSTICK	£14.99
FIVE-YEAR GUARANTEE	
CRYSTAL MICROSWITCHED JOYSTICK WITH A/FIRE	
FIVE-YEAR GUARANTEE	£16.99
3.5" LOCKABLE DISK STORAGE BOXES	
40-CAPACITY	£10.95
80-CAPACITY	£13.95

3.5" BLANK DISCS

£10.00
BRANDED
GUARANTEED DS/DD
WITH LABELS
Per 10
(+ £1 P&P)



ALL PRICES INCLUDE VAT

COURIER SERVICE AVAILABLE

FREE DELIVERY ON ORDERS OVER £50

OUR TELEPHONE HOTLINE (021)-377-6698

COMPUTER-WIZE

10 WISEMAN GROVE, (AUI), NEW OSCOTT,
SUTTON COLDFIELD, BIRMINGHAM B23 5YG

INTRODUCING.....



An
Evolution
in Disk
Utilities
for Amiga™
Personal
Computers!

- F • An easy to use, friendly and intuitive user interface.
- E • A powerful and fast disk backup tool that lets you make backups of your copy-protected Amiga software.
- A • A disk editing tool that lets you edit raw MFM tracks, AmigaDOS sectors and AmigaDOS files (automatically calculating new checksums).
- T • A disk cataloging tool that lets you maintain lists of your personal, public domain and commercial software.
- U • A unique backup tool for duplicating other disk formats including MS-DOS/PC-DOS and Atari ST.
- R • An easy to read, informative user manual is included.
- I • This product is not copy-protected in any way.

NOW SHIPPING!

\$49.95 EA.

Includes shipping and handling!

Arizona residents add 6.5% sales tax.

TO ORDER

Send check or money order to:

Fuller Computer Systems, Inc.

P.O. Box 9222

Mesa, Arizona 85204-0430

Or CALL (602) 835-5018

Amiga is a trademark of Commodore-Amiga, Inc.

Dealer Inquiries Invited

Hardware from CBM

Upcoming hardware from Commodore has been promised, but never discussed. The latest whispers, however, are very promising. We hope to soon see: The Professional Video Adapter, a combination of digitizer, a frame grabber, and a combination genlock; and, a Amiga High Resolution Color Graphics Band, with 269 colors (from a palette of $\frac{1}{2}$ million. For both pieces of hardware, an Amiga 2000 is needed.

Million Dollar Software Acquisition Drive

The Disc Company has unveiled its plans to invest over \$1,000,000 during 1989 to acquire innovative innovative software products for the Commodore Amiga computer.

With its corporate offices in Ann Arbor, MI and European headquarters in Paris, France, The Disc Company distributes its products through an international network of distributors in North America, Europe and Australia.

TDC will launch an international advertising campaign in all the major Amiga periodicals informing independent software developers of the benefits offered to TDC's creative artists, the Company tells us.

"Usually, developers go through a national publisher that will in turn license the software to another publisher abroad, thus reducing the

Timescanner, the Sega arcade conversion, now licensed to Electric Dreams is heading your way in April. The game consists of four levels: Volcano, Saquarra, Ruins and Final. Levels are divided into two screens and the machine scrolls between the upper and lower parts of that level. Each level is only accessible via a time tunnel on the previous level. Entry to the tunnel depends largely on your pinball skills.

Electric Dreams says, "Take notice of the: realistic nudge and tilt feature; the multiball facility of up to three balls on screen at any one time; the six flippers on the screen; the double length, double height screens; and the special final bonus screen."

royalty revenues to the developer", explains Howard Marks, managing director of the European Operations. "We are the only Amiga specialized company to offer worldwide distribution without sub-licensing to other publishers, which means higher revenues for the developer", Marks continued.

TDC guarantees a two week review process and accept submissions written in English, French and German.

The Disc Company is an International publisher of Amiga software. Its main products include Kind-Words, The Critic's Choice integrated business package, The Publisher's Choice desktop publishing package and Superback, the fastest hard disk backup utility. Contact: The Disc Company, 1 Rue du Dome, F-75116 Paris, France, Tel. (33 1) 45 53 10 53, or for the United States Office: 3135 South State Street, Ann Arbor, Michigan 48108, USA Tel. (313) 665-5540.

TIME SCANNER

Available on Commodore 64 Cassette (£9.99), Commodore 64 disk (£14.99), and AMIGA (£24.99). Contact: Electric Dreams, Blake House, Manor Farm Road, Reading, Berks RG2 0JN, Tel: 0734 311666.

Tempestuous Tags

In Los Angeles, dog owners tag their pooches with electronic chips in case the dogs ever get lost. Electronic tagging obviously takes on different applications in the UK.

Tory MP Sir William Shelton has called for electronic tagging of criminals to be extended to include prostitutes.

VINDICATORS

Don't get mad — get even! "VINDICATORS", the first in the exciting line-up of TENGEN titles from Domark is set to invade your home computer in mid-March.

"VINDICATORS" is a 3-D, multi-directional scrolling tank game with a high element of strategy, and features a continuous buy-in feature allowing another player to join in at any time.

Date: The year 2525. Place: Outside Galaxy TR15. As Team Commander of a SR-88 Strategic Battle Tank take control of your own destiny in your bid to attack and destroy the invading forces from the evil Tangent Empire. Your goal is to proceed through fourteen space stations, securing each by demolishing its control centre.

As you defeat each station, don't forget to take the supplies that the fleeing Tangents have left behind.

This explosive home computer challenge is the first

Shelton said that electronic tagging would serve as a curfew and keep prostitutes indoors.

The idea has outraged Labour MP Frank Dobson, MP for Holborn and St Pancras, who calls the scheme 'a gross invasion of peoples' civil liberties.'

A pilot electronic tagging scheme is soon to be introduced for offenders on probation. Shelton said that this could be an option for prostitutes and curb crawlers.

The idea of electronic tagging was first introduced by Home Secretary Douglas Hurd last October as an alternative to imprisonment.

Tagging is widely used in the US and if successful in the UK, non-violent offenders could find themselves fitted with what Hurd termed an 'electronic bicycle clip'.

Some are of the opinion (we have heard) the MPs should be tagged. But perhaps tracking their whereabouts is better left to the tabloids. We would not want to harm the yellow press industry.

from Domark on the new Tengen label and is available on the following formats: Commodore cass (£9.99); Commodore disk (£12.99); and Amiga disk (£19.99) (PC version to follow shortly).

For further information, Contact: Beverly Gardner. Tel: 01-837 4175

DPT Low Cost Printing

Mitsubishi is lowering the cost of full-colour printing for desktop publishing and presentation graphics users.

The G330 thermal-transfer printer costs £2,990 — less than half the price of similar products, Mitsubishi told us.

The printer's video processing features grab a full frame of colour screen data in around two seconds, leaving the PC free for other processing tasks.

You can then print out your masterpiece on either paper or overhead transparency film.

HUMGOLD COMPUTERS LTD.

for your AMIGA requirements

Amiga Games		Forms In Flight V2	£78.99	£63.95
Bards Tale I & II	£24.94	Home Account	£29.95	£24.33
Battleshess	£24.94	Interchange Modules	£49.94	£40.58
Captain Blood	£24.94			
Cybernoid	£19.95	KindWords	£19.95	£16.22
Hellfire Attack	£19.95	Lattice C V6.0	£49.00	£40.43
Heimdall	£19.95	Light's Camera Action!	£241.50	£196.22
Outrun	£24.99	Microfiche Filer	£57.50	£47.44
StarGlider 2	£24.99	Professional Page	£69.00	£54.50
Tima & Magik	£19.95	Sculpt 4D Professional	£249.00	£202.32
Ultima IV	£24.96	Word Perfect 4.1	£368.00	£312.80
Who Framed Roger Rabbit	£29.95	Word Perfect Library	£228.85	£188.81
		Public Domain Disks	£113.85	£93.95
		Public Domain Catalogue Disk	£2.75	
Amiga Software			£3.00	
City Desk V2	£149.95	Amiga Hardware		
Comic Setter	£89.95	1 MB Curamax External		
Comic Setter Clip Art	£55.84	3.5 Inch Drive	£99.95	£90.95
Disk (each)	£24.94	30 MB Supra External		
Duluxe Music	£20.27	1.44 MB Supra External	£82.44	£732.53
Construction Set	£59.95	DigiView 3.0 (PAL)	£149.95	£127.45
Deluxe Motoball	£59.95	Futuresound	£79.95	£71.55
Deluxe Print It	£49.94	Amiga 500 + TV modulator +		
DigitalPaint 2.0 PAL	£59.95	Photo print	£399.99	£366.02
Express Paint V2.0	£69.95	WORKBENCH 1.3		
FACC II	£29.95	Phone		

Orders (Cash/cheque only) to:

HUMGOLD COMPUTERS LTD
 (Mail order dept.)
 85 Longhurst Road,
 Lewisham, London SE13 5NA

01-852 3992

(ansatone) for full price list

All prices are subject to change without notice.

NEW! — BEGINNERS GUIDE TO AMIGADOS — NEW!

This is a new and effective way to take you from a beginner to an expert on AmigaOS. The package consists of a guidebook, a tutorial DISC, a crib card and FREE additional software which could cost you over £20 to buy elsewhere.

This is a clear and well thought out guide to AmigaOS. It is the easy way to learn about the power of AmigaOS. It takes you by simple steps, with many examples through the AmigaOS commands. The emphasis is on learning through experience and doing — not just reading like most other books. It shows you how to set up a simple boot disc with your own customized messages that will boot in seconds (very much faster than workbench!). It will show you how to make your Amiga independent of the workbench disc — no more "Please insert workbench disc". It shows you how to include your own pictures (e.g. from DPaint) on your boot up sequence and MUCH MUCH more. The disc includes a password system which will prevent unwanted users from using your Amiga! The disc also includes a gallery of pictures.

Guidebook, Disc and Crib card only £12.95.

U.K. P&P FREE and by FIRST CLASS post.

Overseas orders welcome —

Payment in pounds sterling please.

Europeans please add 50p.

Outside Europe please add £1.50 for airmail.

Cheques/P.O.s to:

WIZARD SOFTWARE (Dept A6)

20 Hadrian Drive, Redhills,

Exeter, Devon EX4 1SR

MEMORY & HARD DRIVE SPECIALISTS

2.5 MEG FOR A500 £475

(normal price would be £525)

SAVE £50 includes 501 and Spirit Board)

1.5 SPIRIT BOARD POPULATED AT £375

(Normal price £400)

**512K A501 WITH CLOCK
POPULATED £119**

(Normal price £145)

1.5 MEG FOR A1000 WITH CLOCK £399

(Normal price £430)

**42 MEG HARD DRIVE — COMPLETE
SYSTEM FOR A500 or A1000 £475**

84 MEG SYSTEM £699 fan cooled etc . . .
 (£300 to £450 cheaper than elsewhere)

**DRAM CHIPS AVAILABLE £85
FOR 512K**

**YOU WILL NOT SEE PRICES THIS LOW!!! NEITHER
WILL YOU SAVE SO MUCH MONEY!!!**

Rush your ACCESS/VISA or Cheque to:

BYTES AND PIECES, 37 Cecil Street, Lytham,

Lancs, FY8 5NN. Tel: 0860 254344.

9" x 6" S.A.E. & disk for info & demo.

ADVERTISERS DIRECTORY

16 Bit Centre	86	I.C.S. Electronics	86
16 Bit Software	95	Incontrol	77
17 Bit Software	85		
Amiga users Group	86	James Associates	25
Amiga P.D. Library	96	Lan Computer Systems	73
Ashcom	90		
Applied Visions (UK)	41	Magnetic Media	93
Brown Wagh (UK)	41	Megaland	65
Burocare Graphic Design Ltd	IBC	Microprose software	33
Bytes + Pieces	98	Miracle Systems	37
Calco Software	45	Newtek Inc.	IBC
Clik	53		
Compumart	17	Official Secrets	88
Computer Wize	96	Once Bytten	86
Datel Electronics	58/59	Photo File	95
Desktop Graphics	95	Postronix	IFC/3
Delta Pi	95		
Digita International	85	Robson Electronics	88
Discovery Software	28		
Eazyprint	55	S.C.C.	70/71
Enkey	96	Sabre 16	55
Evesham Micros	63	Silica Shop	75
Fuller Computer Systems Inc.	96	Siren Software	77
Gain Star	57	Softville P.D. Services	93
George Thompson Services	7	Southeast Software	
Hammersoft	93	(S.E.S.)	77
Hi-Voltage	13	Sub Logic	84
Hobbyte	45		
Humgold Computers	98	The Disc Company	9
		Trilogic	57
		Wizard Software	98

DIGIVIEW

G O L D

All-New!
Hardware and Software
Designed for A500/2000—
Even Better Pictures Than Before!

1.



2.



Actual 4096 color Digi-View Gold picture

3. Simply the Best.

The all new Digi-View Gold is the best video digitizer for the Amiga. Period. Nothing else even comes close. Why? The secret is that Digi-View Gold captures 2.1 million colors in memory, giving you an incredible 100,000 apparent colors on screen simultaneously.

And it's easy to use. Just focus your video camera on any object or picture, and in seconds Digi-View Gold turns it into Amiga graphics that glow with vibrant color and clarity. Whether you are creating graphics for desktop publishing, presentations, video, or just for fun, Digi-View Gold gives you dazzling images with amazing simplicity.

Digi-View Gold is designed specifically for the Amiga 500 and 2000, and plugs directly into the parallel port. Digi-View Gold's powerful image capture and manipulation software (version 3.0) now has complete control of color and sharpness, full overscan, extra halfbrite, and a special line art mode for desktop publishing.

Only Digi-View Gold:

- Can digitize in all Amiga resolution modes from 320x256 PAL up to 768x580 PAL (full PAL hi-res overscan)
- Uses 2 to 4096 colors (including extra halfbrite)
- Uses exclusive Enhanced HAM for super fine detail
- Is 100% IFF compatible and works with any graphics software
- Can digitize 21 bits per pixel (2.1 million colors) for the highest quality images possible
- Has advanced dithering routines that give an apparent 100,000 colors on screen simultaneously
- Has powerful Image processing controls for complete IFF picture manipulation

If you want the highest quality graphics for your Amiga, as easy as 1, 2, 3; then you need the new version of the best selling video digitizer of all time: Digi-View Gold.

ONLY £129.95

Digi-View Gold is available now
at your local Amiga dealer.
Or call 010-1-913-354-1146

NewTek
INCORPORATED

*Requires standard gender changer for use with Amiga 1000. Video camera required; not included. NewTek sells a video camera, copy stand, and the Digi-Droid automated filter wheel for Digi-View Gold. If your local retailer doesn't carry these products, call us at 913-354-1146. Digi-View Gold is a trademark of NewTek, Inc. Amiga is a trademark of Commodore-Amiga, Inc. If you would like to become a member of the Cool Friends of NewTek Club or just be put on our mailing list, write to us at NewTek, 115 West Crane, Topeka, KS 66603 U.S.A. Be seeing you!

NEW 2QQ

Amiga Hard Disks

AMIGA 2000
AUTHORISED
CENTRE

Compatible with Amiga 500, 1000 and 2000

[All boxed with power supply, fan and relavent SCSI interface]

80 Mb 28ms Hard Drive	.....	£950	inc. VAT
60 Mb 40ms Hard Drive	.....	£750	inc. VAT
40 Mb 40ms Hard Drive	.....	£650	inc. VAT
20 Mb 65ms Hard Drive	.....	£550	inc. VAT

THE VD3+ REAL TIME COLOUR DIGITIZER

PAL AND NTSC - £795 +VAT

The VD3+ allows the user to take an input from any video source, including tape, and digitize it in full 4096 colour in Amiga format.

THE AMIGA CRP GRAPHICS TABLET

A3 - £595 +VAT A4 - £360 +VAT

Resolution: 0.1 m.m. or 10 point/m.m., or 250 points/inch
Absolute Accuracy: +/- 0.5m.m. (0.020")
Comptabile: Dpaint II, Graphicraft, Digipaint.

POLAROID PALETTE

The system allows the user to take full colour pictures of the computer screen and produce 35mm slides
INC.

- Amiga Interface
- Polaroid Palette Image Recorder
- Polaroid dedicated 35mm autowind camera back
- Polaroid 3 1/4" X 4 1/4" print and overhead projection transparency camera
- 35 mm Auto Power Processor
- Illuminated slide cutter/mounter
- Software and Manual

£1495 + VAT



Now Accepting Orders for
Amiscan Amiga A4
Flatbed Scanner

DESK TOP PUBLISHING SOLUTIONS

Hewlett Packard
PaintJet
4096 Colour Printer
£895 +VAT

NEC LC-890
Postscript Printer
£3650 +VAT

Removable 20Mb Hard cartridges
The Ultimate in Mass storage

Hewlett Packard
DeskJet
£595 +VAT

Burocare Graphic Design Ltd.
BESPOKE AND TRAINING SERVICE AVAILABLE

211 Kenton Road, Harrow, Middx., HA3 OHD
Tel. (01) 907 3636 Fax. (01) 907 0027